# An Address
ON
# WOUND INFECTIONS
AND ON
## SOME NEW METHODS FOR THE STUDY OF THE VARIOUS FACTORS WHICH COME INTO CONSIDERATION IN THEIR TREATMENT.

*Delivered before the Royal Society of Medicine on March 30th.*

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THERE are a number of quite elementary problems which must be solved before we can arrive at any effective treatment of wound infections. A very brief consideration of the facts will bring us face to face with the questions to which we have to find an answer.

### EVOLUTION OF WOUND INFECTIONS.

In this war practically every wound is heavily infected. The chain of cause and consequence seems to be as follows. The clothes and skin of the soldier on war service become contaminated with all manner of filth containing pathogenic organisms and spores; the projectile takes these with it, and it implants them far beyond the reach of any prophylactic applications of antiseptics.

A cultivation medium is now provided by the blood and lymph which are poured out into the track of the projectile; and we find in the wounds—I have in view here wounds examined immediately after arrival at the front—a mixed infection of a streptococcus with microbes derived from the fæces. This fæcal infection is a special outstanding feature in this war.

Among many species of intestinal microbes which have been found in wounds two have a quite special importance. One is the *gas-phlegmon bacillus*, or *Bacillus aerogenes capsulatus* of Welch—a large Gram-staining anaerobic and actively gas-forming microbe. It is found both in infiltrated superficial wounds and in deep wounds, and is particularly abundant in the frothy and offensive fæcal-looking discharges which anaerobic wounds furnish. The other is the tetanus bacillus. It is more rarely encountered, and is also much less abundant in the discharges. Sometimes, however, it may show up in every field of the microscope.

The presence of the streptococcus and these two fæcal microbes makes the first period of the wound infection—the period of imprisoned discharges—a specially critical time for the patient. During this the streptococcus may invade the tissues, and set up a cellulitis or, more rarely, erysipelas. Or the tetanus bacillus may find opportunity to grow out and manufacture its poison and induce tetanus. Or the bacillus of Welch may make its way into the body and set up a gas-phlegmon in the region round about the wound, and an obstructive gangrene in the distal portion of the limb. Or, again, the bacillus of Welch and the streptococcus may join forces, and may in conjunction produce the gas-phlegmon or cellulitis.

As soon as a free outlet has been provided, and aerobic conditions have been established in the wound, its bacterial flora changes. The ordinary pyogenic infection which has, up to this, been in abeyance, now gains the upper hand, and instead of an "*infection of the imprisoned discharges*" or, as the case may be, "*an infection of tissues*," we have now an "*infection of the granulating wound surfaces, and of the flowing discharges.*" The chief bacterial agents here at work are the streptococcus and staphylococcus, and bacillus proteus.

This pyogenic infection may, after lapse of time, subside, the wound healing up when this occurs; or the mixed infection may narrow itself down to a streptococcic infection and become chronic, the wound in this case remaining open indefinitely in the form of a discharging sinus. Or, lastly, when there is an obstructed outflow the infection may go from bad to worse, until the patient succumbs to continued suppuration and septicæmia.

### SOME FUNDAMENTAL CONSIDERATIONS IN REGARD TO TREATMENT.

Those are in very brief summary the facts with regard to the evolution of wound infections, and I would venture, in passing on to discuss with you their treatment, to remind you that the ideal we ought to approximate to is the healing of the wounds by *first intention*—that is, without sensible interference by bacterial infection; and that we are so far from the attainment of that ideal that nearly all our wounded are suffering from bacterial infections; that very many are ill of these infections; and that not a few are, through these, in danger of their lives.

We have at disposal for the treatment of these wound infections three different therapeutic measures. Let me enumerate them to you in the order in which they would naturally suggest themselves to you.

First in that serial order would come *treatment by antiseptics*. After this would come what I would propose to call *treatment by physiological methods*. I mean procedures such as the opening and draining of the wound—which bring the antibacterial powers of the blood to bear on the infecting microbes. And, lastly, would come the reinforcement of the antibacterial powers of the blood—i.e., *treatment by vaccine-therapy* and similar methods. I believe it is really beyond all question that of these three the second is beyond all comparison the most important, and I would submit that, all loud talk about antiseptic treatment notwithstanding, this is at best an ancillary method of treatment. And, of course, the same applies also to treatment by vaccines.

Let me also here suggest to you another quite fundamental consideration. It is this. It will be clear that we cannot apply physiological treatment aright, nor can we apply any antiseptic or vaccine to best advantage in wound infections unless we first understand the physiological processes which go on in the wound. We do not understand these yet, even in outline.

It will therefore be necessary to address ourselves to the task of discovering what goes on in the wound and of following out its biological evolution. And the only way of doing this will be to formulate to ourselves in clear terms the questions which want answers; then—for merely looking at the wound will not help—considering how to set to work to get our answers; and, finally, taking cognisance of the results which the experimental methods which I am about to describe to you have already yielded.

Our first question can be formulated thus:

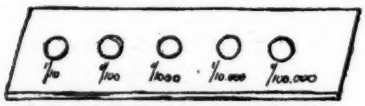
1. *Can the microbes which are found in wound infections live and multiply in the unaltered blood fluids?*

In other words, if I take pyogenic microbes from the wound and implant these into the normal undiluted serum, will this give me a satisfactory amount of growth? If we are going to carry out this experiment, and to carry it out repeatedly, and deal with a number of different bloods; and if we are going to cultivate directly from the pus, we shall evidently have to work in capillary tubes with very minute quantities of pus and very small quantities of undiluted serum. The technique which I have arrived at for fulfilling these requirements is a very simple one. I may call that technique the *wet-wall method.*

*Method of Making Cultivations of Pus in Serum.*

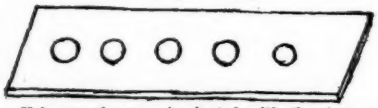
The first step in the procedure to make by the technique I described in my book on "Technique," a graduated series of dilutions of pus, using for this purpose any indifferent diluting fluid, and arranging the successive dilutions on a slide in the form of a series of drops. I then take in hand a clean capillary pipette fitted with a teat, make a mark upon the stem, and then draw up into it a series of unit volumes of serum, one unit volume of serum for every dilution of the pus. This done, I commence with the highest of these dilutions—that is, the one containing the smallest number of microbes

FIG. 1 (Slide I.).




Graduated dilutions of pus arranged on slide.

FIG. 1 (Slide II.).



Volumes of serum implanted with the above dilutions of pus.

—and draw it up into the stem of the pipette, stopping off exactly at the fiducial mark. I then expel this column, leaving, of course, as I do so the walls wet with a quantum of microbial suspension—a quantum which would correspond roughly to that which would be left on the outside of a platinum wire of similar stoutness dipped into the suspension. I now expel from my capillary tube my first volume of serum—this in passing over the wet wall will take up its charge of microbes—and I receive this as it issues on to a clean slide. I repeat these manipulations with the next lower dilution of pus and the next unit volume of serum, and so on, until I have implanted my series of volumes of serum with my series of bacterial dilutions. At the end I find myself with a series of drops of serum, containing graduated charges of microbes, ranged in order upon a slide, and I have in my hand a pipette which is contaminated up to the point indicated by my fiducial mark. I get rid of this contaminated segment of my capillary stem by resecting this just above the fiducial mark, and I now proceed to draw up into my pipette, separating off by bubbles of air, the whole series of drops of serum, beginning with that implanted with the fewest microbes. After sealing up the distal end of the pipette, and closing the butt end by bringing it down upon a bed of plasticine, the pipette is placed in the incubator. After an interval of 6 to 24 hours it is taken out, and the series of unit volumes are now, for purposes of microscopic examination or culture, expelled from the pipette in the order in which they have been taken up—that is, in succession from the lightest to the heaviest implanted. This is effected by cutting through the proximal end of the stem of the pipette and then the distal end, and afterwards luting the latter airtight into the truncated end of the pipette. The luting is done by rolling a little plasticine into a ball, pressing the capillary stem into this pellet as we hold it between finger and thumb, doubling over the plasticine round the stem, and then invaginating the neck of the pipette into the plastic mass. We can now with a teat expel our series of unit volumes of serum on to a slide, obtaining them in the serial order which avoids the contamination of the lighter implanted with the heavier implanted.

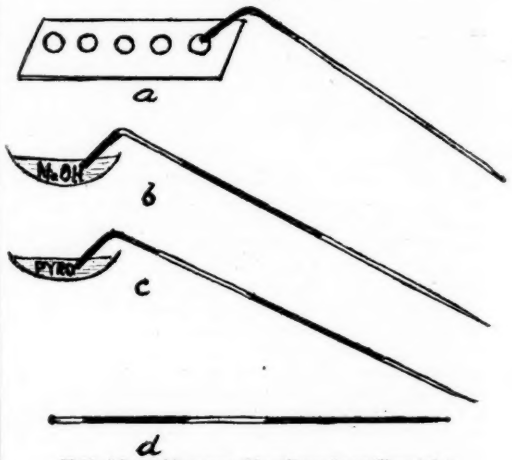
FIG. 2.

Capillary pipette filled in with five unit volumes of serum, and one unit volume of the last dilution of pus.

*Method of Making Anaerobic Cultures in Capillary Tubes.*

When we desire to make anaerobic serum cultures we do not employ the capillary pipette used for the original

FIG. 3.




Method for making anaerobic cultures in capillary tubes.

implanting operations as a receptacle for our series of serum cultures, but employ instead a separate capillary cultivation tube for each unit volume of serum. The capillary cultivation tubes here in question are made as follows: We take a portion of capillary stem, say some 8 cm. long, draw it out at one end in the flame of a by-pass into a hair-fine tube, and then break it off, leaving a certain length of throttle attached. We now introduce the other end of the capillary stem into the flame of our Bunsen, and let gravity bend it round into a syphoning curve.

Taking one of these capillary cultivation tubes we bring down the syphon end upon our drop of serum, and let this run in, afterwards tilting the tube so as to take in, as a rear-guard, a good-sized dividing bubble of air. This done, we fill into our tube, by syphonage, from watch-glasses placed conveniently to hand, first a small quantity of pyrogallic acid, and then, without dividing off, a small quantity of caustic soda. We now further incline the tube, and let the contained fluids gravitate down towards the distal end until the serum begins to enter the throttle. At that point we arrest it by sealing the tip, and we finally also seal up the butt end, leaving the mixed pyrogallic acid and caustic soda to do their work, and absorb all the oxygen from the dividing bubble air.

Serum cultures made by this method furnish a very striking and uniform result. We obtain in the cultures implanted with the higher dilutions of the pus a pure culture of the streptococcus, and in the cultures more heavily implanted with the pus the streptococcus mixed with a certain number of other microbes; in particular, a few staphylococci and an anaerobic wisp-like diphtheroid bacillus, which often is abundant in pus, being found both intracellularly and extracellularly. All the other pyogenic

microbes appear to be inhibited in undiluted normal serum, and when they put in an appearance it is only after fairly heavy sowings with pus, and comparatively late.

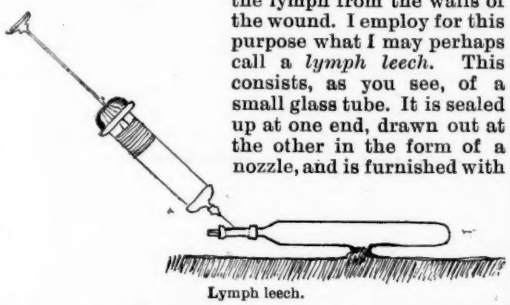
Out of these facts would come what we shall presently see to be a practically important classification of pyogenic microbes—a classification into, on the one hand, *Serophytes*, and, on the other, *Sero-saprophytes*. The serophytes would be those which, presumably because they find their foodstuffs ready made in the blood fluids, are at home there, and can in the absence of phagocytes grow and multiply there without restraint, or practically with restraint.[1] The sero-saprophytes would be those which cannot grow and multiply in the blood fluids until a change which we may, pending nearer investigation, call simply a degenerative change, has passed over those fluids.

What holds true of the blood fluids themselves might perhaps justifiably be assumed to hold true also of the lymph which pours into the wound. None the less, it will be well specially to investigate this point.

2. *Does the lymph which pours into the wound provide a favourable nutrient medium for the microbes which have been growing in that wound?*

To pose this question is already to go a long way towards getting an answer to it. For we can, by the aid of a very simple device, obtain the lymph from the walls of the wound. I employ for this purpose what I may perhaps call a *lymph leech*. This consists, as you see, of a small glass tube. It is sealed up at one end, drawn out at the other in the form of a nozzle, and is furnished with

FIG. 4.



Lymph leech.

a lateral mouth with a raised rim, the whole being very easily made out of a piece of glass tubing or small test-tube. To the nozzle we fit a piece of fairly thick-walled rubber tubing, and this is blocked at the end with a piece of glass rod. When we want to obtain the exudate from a wound we bring down the lateral opening of the lymph leech upon a granulating surface, and then, transfixing the rubber tube with the needle of a hypodermic syringe, we draw out the air and make a negative pressure. It will be appreciated that the lymph leech is in principle merely a small cupping glass, and that it will, by means of the vacuum, be established in it, hold on tight for whatever period may intervene between dressing and dressing, and furnish an exudate free from all contamination with residual pus left behind in the wound. We can now proceed to compare the fluid in the cavity of the leech with the fluid in the wound outside, or, in connexion with work on antiseptics, to compare the contents of leeches applied respectively to treated and untreated surfaces in the same wound.

And lymph leeches can also be put to other uses. We can introduce for this purpose with a syringe any fluid we may select into the lymph leech, investigate the effect that fluid exercises upon transudation and emigration. Again, where the nature of a deep-lying infection of a mucous or other surface remains uncertain the application of a lymph leech might clear up the difficulty. We can also, in the case where we are testing the effect of a vaccine upon a wound, take to our aid the lymph leech. For the effect of a vaccine would probably show itself in the exudate in the cavity of the leech long before it would manifest itself in the outside wound. And, lastly, by the application of a lymph leech to the site of inoculation might perhaps help to resolve the problem as to whether or no protective substances are then developed.

But it will be realised that for us at the moment that which is of chief interest is the comparison of the fluid in the cavity of the leech with the fluid in the wound outside.

When, after washing out a heavily infected wound with an antiseptic or simple saline solution, we apply a lymph leech to the walls and then at the next dressing compare the contents of the lymph leech with the fluid outside, we think at first that there must be some mistake. Outside we have an opaque exudate presenting all the ordinary physical characters of pus, containing leucocytes in all stages of degeneration, and swarming with all manner of pyogenic organisms. Inside we have a transparent and slightly blood-stained exudate containing streptococci in practically pure culture, and in addition a few leucocytes, all of which are actively phagocytic. Except in this latter respect, we have, in fact, identically the same result as when we made our thin implantations of pus into normal serum.

The problem now stares us in the face—What is it that makes all this difference between the contents of the lymph leech and the contents of the wound? How has the lymph, which gives in the cavity of the lymph leech a culture of streptococcus, been converted in the wound outside into a fluid which is ideally favourable to the growth of a great number of different species of micro-organisms?

3. *What is the cause of that "corruption of the lymph" which converts it into a favourable nutrient medium for sero-saprophytic microbes?*

The proper way to go to work upon a problem of this kind is to keep it unremittingly before the mind. For then some hypothesis will in the end suggest itself. That found, there will invariably come to notice a certain number of accepted data which the hypothesis will fail to explain. These must then be carefully re-examined to see whether they will stand fast and discredit the hypothesis, or whether they also will come in and support it. And finally, before launching our theory, we ought to think out all its consequences, and then take each of these and verify it.

At any other time one would wish, before promulgating a far-reaching hypothesis, to have verified it at every point. But we have on our hands in Europe, I suppose, already 2 or more millions of wound infections, and every other consideration must give way to that of accelerating the researches, which we must look to to guide us in treating these infections.

I will, therefore, before completing its verification, venture to put before you what is, I believe, the solution of the problem of the corruption of the lymph in the wound.

[1] I introduce this qualifying clause because I have on several occasions found the serum of the infected patient to give cultures of streptococcus with a planting of his pus much smaller than that which was required to give a culture in the serum of a normal man.

Let me take my departure from those facts which we were considering a moment ago, relating to the culture of pyogenic microbes in the blood fluids. You will remember that I suggested in connexion with serophytic microbes that these must find all the food materials they require ready formed in the blood fluids, and in connexion with sero-saprophytic microbes that for these no nutrient substances would be available until the albuminous substances of the blood had undergone some sort of preparatory transformation.

I conceive that that transformation could come only by a digestive process. Now, supposing this to be so, there would in the serum come into account a counteracting influence. For we have there an antifermentative, or, as we usually style it, an antitryptic element, which would directly counteract any digestive element which might be struggling to come into operation. And it is clear that microbes which were dependent for their sustenance upon the products of digestive action could establish themselves in the blood fluids only on condition that this antitryptic influence was overborne.

This hypothesis furnishes, as it seems to me, an explanation for certain striking facts relating to the cultivation of microbes on blood fluids, and to bacterial infections. It, as it seems to me, explains the finding that heavy sowings of microbes into serum are effective in giving cultures, while light sowings are not only ineffective, but lethal to the implanted microbes. For it would be only natural that the resistance offered by the antitryptic power of the blood should be overcome by the mass effect of a number of microbes operating upon a restricted or—and this would come into consideration in localised infections—a mechanically isolated quantum of blood. And, again, it would be only natural that the mass effect of a large volume of antitryptic serum could not be overcome by the digestive activities of a very few microbes; and also, I think, in accordance with what we know, that microbes deprived of access to foodstuffs should perish of inanition.

Our hypothesis would also make intelligible, in connexion with infections by sero-saprophytic microbes, that frequent and heavy sowings into the blood should be required before a septicæmia can supervene upon a local infection. And, again, our hypothesis makes it comprehensible that there should be serious difficulty in obtaining hæmo-cultures, even when the microbes have gained a footing in the blood stream.

And, lastly, our theory brings home to us that, in considering the defence of the body against bacterial infection, we have to take into account not only *active defence* in the form of phagocytes and bacteriotropic substances which make a direct attack upon micro-organisms, but also *passive defence*—that is, protection against infection obtained by preventing microbes converting to their uses the nutrient substances of the blood fluids.

These, however, are general considerations with applications far beyond the sphere of wound infections, and we must return to the particular problem of the corruption of the lymph in the wound.

When, after treating a wound with antiseptics and leaving it clean, we find it a very few hours afterwards teeming with microbes, we are in presence of something which, in my view, urgently stands in need of explanation. For our findings both in the lymph leech and in serum cultures made with the wet-wall method from pus would seem to teach us that the sowing of microbes left behind cannot be nearly heavy enough to produce the voluminous culture found in the wound, nor yet to account for the rapidity with which the sero-saprophytes have started to grow. And, moreover, consideration will bring out that another powerful factor must constantly come into operation in the wound. The factor in question is the tryptic ferment which is elaborated in the phagocytes, and which is, when these break up, discharged into the surrounding medium. This tryptic ferment will come into operation under two different conditions. It will come in whenever a residue of pus—for this would contain free trypsin—is left behind in or afterwards makes its way into the wound. Trypsin will again come into account whenever, after the washing of the wound, leucocytes once more begin to emigrate and phagocytose and break down.

I see in the reduction of the antitryptic power of the lymph thus effected the prime cause of its corruption. Before attempting to obtain confirmation of this from crucial experiments there was a set of findings to be cleared up. I had found in connexion with pus implantations made into serum that when this was heated to 60° C. for ten minutes one no longer obtained the same differential growth of streptococcus as with unheated serum, but obtained instead mixed cultures of streptococcus with sero-saprophytes, in particular staphylococcus and the wisp-like diphtheroid bacillus already made mention of. It seemed at first sight as if this could not possibly be related with a reduction in the antitryptic power of the serum, for it has, in view of the high quality of Opie's work on this question, been generally accepted from him that the antitryptic power of the serum is unaffected by exposure to heat until a temperature approaching the coagulation point of serum is reached. In reality, however, when this is re-investigated quantitatively[2] it emerges that the antitryptic power of the serum is reduced by one-third to one-half when we subject the serum to a temperature of 60° C. for ten minutes.

That difficulty having been removed out of the way of our hypothesis, we may proceed to take cognisance of the results of the crucial test experiments—experiments in which graduated additions of trypsin are made to serum as a preliminary to the implantation of sero-saprophytic microbes. The event of these experiments can be summed up in a sentence. When we add trypsin in quantities sufficient to reduce appreciably the antitryptic power but insufficient to give us any free trypsin, the serum is converted into an eminently favourable nutrient medium for sero-saprophytic microbes.

Our hypothesis is thus very strikingly confirmed. It will be necessary hereafter to follow it into all its consequences. For the present it will, however, suffice if we ponder on the following points. The antitryptic power of the blood would appear to be increased in every case of severe wound infection. We have perhaps here a defensive reaction of the organism directed against a possible invasion of the blood by sero-saprophytes. And we may

[2] The quantitative method here employed was in essentials that described in my "Technique of the Test and Capillary Glass Tube." It was varied only in the respect that the series of trypsin, serum, and calcified milk mixtures which are employed in that method were taken up, not into a many-stemmed pipette, but into a long, unmounted wide-bored capillary stem, which had, for the purpose of convenient filling in, been bent round at one end in the flame of a Bunsen into a syphoning curve.

perhaps look in this direction for an explanation of the non-specific benefit which has been observed to follow upon the inoculation of bacterial vaccines. It is clearly not impossible that the inoculation of a bacterial vaccine might contribute both to active and passive defence—to the active defence of the body against a particular microbe by calling forth a production of specific bacteriotropic substances and to the general passive defence of the organism by calling forth a production of antitrypsin. And these two forms of immunising response would not necessarily be linked together. The production of specific bacteriotropic substances would no doubt depend upon the quantum of bacterial antigen incorporated; while the production of antitrypsin might perhaps depend upon the breaking down of phagocytes and the liberation of their trypsin.

*(To be continued.)*

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee 28 cases were considered and grants amounting to £252 were voted to 22 of the applicants. An annuity of £26 was also voted to one applicant. The following is a summary of a portion of the cases relieved:—

Daughter, aged 54, of M.R.C.S. Eng. who died in 1898, and practised at Manchester. Was able to earn her living as a clerk until her health broke down. Only income a pension of £15 per annum from her old employers. The Manchester branch of the Guild have assisted with clothes. Voted £14 in 13 instalments.—Widow, aged 55, of L.R.C.S. Edin. who practised at Dulwich. Husband's long illness absorbed all savings. One daughter, who is being educated by a relative. Applicant suffers from varicose veins and quite unable to work. Voted £10 and referred to the Guild.—L.R.C.P. & S. Edin., aged 65, who practised at Walthamstow, suffering from aphasia and quite unable to do anything. Until recently acted as locum-tenent Married, no children. Voted £18 in 12 instalments.—Widow, aged 61, of M.D. McGill Univ. who practised at Waterloo, Liverpool, and had a very long illness. Five children, ages from 30 to 38. Two sons away from home unable to help, and only income from a daughter who is a clerk earning 30*s.* per week. Other two daughters invalids and require constant nursing. Voted £18 in 12 instalments and referred to the Guild.—Daughter, aged 49, of M.D. Glasg. who practised at Bawtry. Has managed to earn a bare living by taking boarders, but has had none since last autumn owing to the war, and is now in great distress. Voted £10 in two instalments and recommended to apply to the Local War Relief Fund.—M.B., C.M. Edin. who practised at King's Heath, Birmingham. Is married, with one daughter aged 15. Applicant's health and his wife's very unsatisfactory. Has lost nearly all his ordinary and panel patients since the war, and is in great financial straits. Voted £10 and recommended to apply to the local branch of the Prince of Wales' Fund.—Daughter, aged 38, of M.R.C.S Eng. who practised in London. Has earned her own living as governess until health broke down and an operation was necessary a few months ago. Hopes when strong again to resume her work. Voted £5 to take a holiday.—Widow, aged 46, of M.B., C.M. Edin. who practised at Glasgow. Has seven children, ages 6 to 28. Husband was ill for two years before his death and was unable to provide for his family. Son who used to help to keep the home recently disappeared. Earns a little by taking in lodgers and has £12 a year from another charity. Previous relief £52. Voted £20 in 12 instalments.—Widow, aged 60, of L.R.C.P. Edin. who practised at Dumfries. Has two sons, both of whom have joined the army, and two daughters whose total earnings are 18*s.* per week. Previous help six times, £56. Voted £12 in 12 instalments.—Widow, aged 42, of M.D. Aberd. who practised in South Africa. Applicant is suffering from abdominal tuberculosis. Has an annuity of £15 from a charity for incurables; total income only £18. Has two children, ages 14 and 15, both of whom are kept by relatives. Relieved three times, £57. Voted £12 in 12 instalments.—Daughter, aged 66, of M.R.C.S. Eng who practised at Tonbridge. Only income derived from one boarder and £10 per year from a friend, and finds it impossible to make ends meet. Previous relief eight times, £96. Voted £12 in 12 instalments.—L.S.A. Lond., aged 82, who practised at West Kensington and is now blind, and son who lives with him also nearly blind. Other son only able to help slightly. Has a pension of £20 from another charity, also old age pension. Previous relief three times, £30. Voted £12 in 12 instalments.—Daughter, aged 37, of L.R.C.P. Edin. who practised in co. Cavan. Earned her living and was able to assist her mother and invalid sister until she had recently to undergo an abdominal operation. Previous relief some years ago, £10. Voted £10 in one instalment for her convalescence.—Daughter, aged 63, of M.R.C.S. Eng. who practised at Bath. Health very bad, and the little capital left by her father spent in endeavouring to get well. Only income an annuity of £31. Relieved four times, £42 Voted £6.—Daughter, aged 51, of M.R.C.S. Eng. who practised at Holland Park. Health very bad and unable to work. Income only £15 per year and a little assistance from friends. Relieved four times, £37. Voted £12 in 12 instalments.—Daughter, aged 64, of M.R.C.S. Eng. who practised at Great Malvern. Has been able to earn a living as a teacher of elocution, but owing to the war has lost practically all her pupils. Hopes to obtain a paying guest shortly, which will greatly help her. Previous relief twice, £22. Voted £10.

Contributions may be sent to the honorary treasurer, 11, Chandos-street, Cavendish-square, London, W.

# WAR AND CHOLERA.[1]

BY W. J. R. SIMPSON, C.M.G., M.D. ABERD., F.R.C.P. LOND.,
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AFTER a reference to the remarkable fierceness of the battles, the unfavourable weather conditions, the remarkable absence of scurvy, dysenteries, and epidemic diseases that had so far characterised the present war, Professor Simpson pointed out that the armies of Germany and Austria would be in a very different physical, mental, and material condition in August and the autumn of 1915 or 1916 from what they were in 1914, when victory appeared assured to them. Should epidemics then arise they would not be confined to the particular armies that are first stricken, nor would the civil population in the devastated areas escape. He continued:—

Let us glance for a moment at some of the conditions that will be favourable for the development and spread of epidemic disease. Scarcity of food will add to the hardships of the civil population that have the misfortune to be within the fighting zone, for in this great siege war the destruction of crops and cattle will place large areas much in the position of besieged towns in olden days, while the rise in the price of foodstuffs all round, from the disturbance of ordinary economic conditions and from the fewer people left to till the ground, will weigh heavily on the poor in every country engaged in the war. The many millions of men in arms must be fed. Their main supply will come from their own country, but they will also take what they can get from the invaded countries.

This generation in Europe has been so accustomed to regular supplies from overland or sea by the quick transit afforded by steam power and undisturbed agricultural pursuits, supplemented by a world commerce, that the famines, dearths, and scarcities of an earlier period have been forgotten. Now Central Europe is back, more or less, to a time of isolation plus war on a gigantic scale. The effects of droughts and floods, which assumed importance in times of greater isolation of countries, have under modern conditions been counterbalanced by an inrush of produce from other lands, so that the third partner of soil and seed—viz., meteorology—has been assigned of late a very secondary position, which could only continue while each country has the world to draw on. When this ceases, as it has done for some parts of Europe, meteorology assumes its old sway. The winter, so far as it has gone, has been a particularly wet one, not only at the seat of war but outside of it. In one respect this has been an advantage, because of filling the wells, but the wet season and the purposely flooded lands of Flanders will render the conservation of foodstuffs more difficult than under other circumstances, will accentuate the dearth of food in Europe, and add to the threatening destitution and want. The severe earthquake in Italy, with its 24,000 deaths in one district, will not be without its effect on the physical and mental condition of those in the immediate outskirts of this disaster and who have been subjected to the shock.

A combination of war, flood, and earthquake, ending in famine in some localities and in scarcity of food in others, is calculated to be a powerful force favouring in due season the manifestation

[1] Abstract of a paper read at the Society of Tropical Medicine and Hygiene, Feb. 19th, 1915.

and spread of epidemic disease, whether it be typhoid or typhus fever, small-pox, cerebro-spinal disease, cholera, dysentery, malaria, or plague, should the germs of these be present and be conveyed from place to place by any of the armies or refugees.

### *Cholera Invasions of Europe.*

Although cholera is not an endemic disease in Europe, its visitations in the nineteenth and twentieth centuries have destroyed millions of the population. There have been nine invasions of Europe in a little over 90 years. They have varied considerably in their duration, power of diffusion, and severity, the more lengthy ones being distinguished by important recrudescences. Certain localities in Russia, in the neighbourhood of the Caspian Sea, have been so frequently attacked that it is a question whether the disease has established an endemic centre there as it has done in the Far East, in Java, Indo-China, and the Philippines. Although these endemic centres are in themselves a potential danger, it is doubtful whether any of them have hitherto given rise to any considerable diffusion of the disease beyond their own boundaries. The source of the nine invasions in Europe, which have corresponded with similar invasions of the countries in the Far East, has generally been traced to India, though not directly but indirectly, by spreading by land and sea eastwards through the neighbouring countries. On nearly every occasion there has been more than one avenue into Europe, the disease travelling along the chief trade or pilgrim routes in the Near East and radiating in many directions, but there has generally been one principal gateway by which the epidemic has entered Europe, although almost simultaneously there were often others. The interesting and informing reports of the late Dr. Netten, Dr. Radcliffe, and Dr. Barry, and now of Dr. Bruce Low, of the Local Government Board, form a valuable record of the later epidemics.

Professor Simpson then briefly described the nine European invasions of cholera, and epitomised them in the table given below.

### *European Wars have generally been Free of Cholera.*

Notwithstanding the number of invasions of cholera, there have been only three wars in Europe coincident with its presence in the area of hostilities. Cholera was unknown in Europe until a period well after the Napoleonic wars. The first was the Russo-Polish War in 1831. Cholera was very virulent among the troops, and was believed, by the medical men at the time, to have been materially assisted by the war in its dissemination over Europe. The second was the Crimean War, when cholera prevailed over the whole of Europe; and the third was the Balkan War. Cholera was conveyed to the Crimea in transports from France, but it already prevailed in the Russian and Turkish armies. Both the French and the English armies suffered, and it also affected the fleets. The *Timandra*, carrying sick from the Crimea to the Bosphorus, lost 20 the first night from cholera, and between 40 and 50 *en route*. The *Britannia* lost 150 men from cholera in ten days. The most important manifestation in the Balkan War was the outbreak behind the Chataldja lines, where it is estimated there were about 18,000 cases. It was conveyed from there into the Bulgarian army, which spread it among the civil population, through which it passed, and finally the Greek and Serbian armies were affected.

*European Invasions of Cholera.*

| Epidemics in Europe. | Principal entrance gate into Europe. | Interval between each invasion in years. | Number of years continued in Europe. | General characters. |
|---|---|---|---|---|
| 1823 | Astrakhan. | — | Less than a year. | Did not travel farther west than Astrakhan. The Persian and Turkish armies, which were at war with one another, suffered severely. |
| 1830-37 | Astrakhan. | 7 | 7 | Severe and widespread. Very virulent among the Russian and Polish troops. The war was believed to be the great cause of the rapid propagation of cholera in Europe. Great epidemic among the pilgrims at Mecca. |
| 1847-52 | Astrakhan. | 10 | 6 | Severe and widespread. Invaded a larger area of the world's surface than that of 1830-37, and more deadly. Epidemic at Mecca. |
| 1852-59 | Astrakhan. | Nil. | 8 | More severe and widespread than previous epidemics. On its way through Persia it attacked violently troops of the Shah. Cholera affected the troops in the Crimean War. In 1859 it attacked the French troops in Algeria and the Spanish troops in Morocco. |
| 1865-68 Lingered in Russia till 1874 | Constantinople and Southern ports of Europe. | 6 | 10 | Severe, but more limited in diffusive power. |
| 1884-87 | Marseilles and Toulon. | 10 | 4 | Less severe and limited. |
| 1892-96 | Baku. | 5 | 5 | Less severe and limited. |
| 1905-12 | Baku and Astrakhan. | 9 | 8 | Comparatively mild and limited. |
| 1912 | Constantinople. | — | — | Mild and limited. Prevailed among the Turkish, Bulgarian, Greek, and Servian troops. |

### *Present Position of Cholera in Relation to the Armies.*

The danger of cholera prevailing in the zones of hostilities next August is not a remote one. In Europe cholera prevailed in 1914, in Russia in the Province of Podolia; in Hungary in no fewer than 53 different centres; in Austria in 39 centres; in Germany in 10; and in Turkey in 2. In Asiatic Turkey there were two centres on the Black Sea. There is no information about Persia or Arabia, but they are seldom free of cholera, especially during the seasons of the pilgrimages. War will not stop the pilgrimages to Mecca and other holy places.

There is every probability of the existing infections in Europe recrudescing, and although they possess the character of having stayed their time, had it not been for the wars of the past two years, yet there is a risk of them acquiring an exaltation in their strength and powers of diffusion by attacking a population enfeebled by hardship and destitution.

There is also always the risk of Turkish, Russian, and Indian armies bringing from the East to Persia, Egypt, and Europe a new and more potent

infection, endowed with greater virulence and capacity for spreading than that of 1913 and 1914.

Moving armies are much in the same position as pilgrims and other crowds travelling from place to place. In the Indian armies the long voyage, the excellent ships they come in, and the sanitary precautions taken, reduce the risk of importation by sea to a minimum, but even here carriers of cholera infection are not totally excluded when thousands have to be transported. The same favourable conditions do not exist on the land routes in Persia and Asia Minor, or wherever the Asiatic troops of the Turks may march. Their condition approximates more to that of the pilgrims. The one hopeful feature against the chances of fresh importation on a large scale is that there are at present no signs of an advancing epidemic from the East. On the contrary, the indications are rather that if there had been no Balkan War, cholera would have disappeared from Europe for a time, as it has done in former invasions. That, however, does not justify neglect of precautions and in not being thoroughly prepared for every contingency.

*Modes of Transmission of Cholera.*

One of the most potent factors in the dissemination of cholera from place to place and country to country in times of peace, is the movement of crowds connected with commerce, labour, and religion. The great Hindu pilgrimages in India, and the great Mahommedan pilgrimages to Mecca and other sacred shrines, are active agents in the spread of cholera in epidemic form. Many Indian investigators have demonstrated their influence. Some of the exceptional festivals are attended by millions from nearly every part of India, but even the smaller ones are powerful in disseminating the disease, especially those held in the endemic area, such as at Calcutta and Puri. I remember the great outburst at the Ardhodoya Jog, in Calcutta, in 1891. It is a festival that occurs every 37 years. Cholera broke out at the festival and on the return journey of the pilgrims I was able to trace the spread of cholera from village to village through which the pilgrims had passed, and the setting up of local epidemics in the villages on the return of the pilgrims to their homes. No disease has had its extension from place to place so thoroughly traced to the lines of human intercourse as cholera. The influence of the Mahommedan pilgrims from different parts of the world to Mecca is well known. Mecca has played a part in most epidemics as a great disseminating centre. In 1883 I had the opportunity of demonstrating that two factors had played the chief rôle in the outbreak of cholera at Damietta, the first town attacked by cholera in Egypt in the epidemic of that year. One was the importation of the disease by pilgrims returning from the Hedjaz, and the other contamination of the river water from which the inhabitants drew their drinking water. The investigation merely confirmed the discovery of Snow in 1849 and 1854 as to the mode of spread in England and that it was applicable also to Egypt.

So much is known to-day regarding the transmission of cholera that it will hardly be realised that 30 years ago there were acute controversies on the subject.

[Professor Simpson then summarised the history of the cholera controversy from 1886, when Bryden's earth-borne and wind-disseminated theory was in the ascendant, and dwelt on Koch's confirmation in India of his discovery in Egypt of the comma bacillus. Referring to an investigation made by himself and Haffkine, he continued:]

In a paper at the Indian Medical Congress, held in Calcutta in 1894, we demonstrated that out of 46 tanks around which cholera existed, comma bacilli were found in 42, or 91·3 per cent.; and out of five tanks where cholera had disappeared a month to six weeks previously, comma bacilli were not found in any. This latter conformed to a common experience that if a tank was guarded for three weeks or a month, and further contamination with cholera dejecta prevented, the water was safe to drink. Of 15 wells examined, nine of which were in cholera-infected houses, comma bacilli were found in only one; other agencies were at work here. The air of infected rooms was examined and no commas found, even when the body of the deceased had not been removed and the floor of the hut had been soiled with cholera excreta. In a flour shop, a man attacked with diarrhœa had washed his clothes in a tank behind the premises, and we discovered his clothes still wet lying on a portion of flour exposed for sale. From the flour we obtained a culture of the comma bacillus. Cholera bacilli were also found in the surface drains inside infected houses and also in the drains leading to tanks.

But comma bacilli were not confined to the waters of the Hooghly or Tolly's Nullah, or the canal in the suburbs of Calcutta, or to tanks or drains. I had frequently observed a marked coincidence between outbreaks of cholera with diarrhœal disease among calves in the neighbourhood of tanks. This led us to examine cows and calves suffering from diarrhœa in the vicinity of cholera outbreaks, with the result that commas were found in the intestines of fatal cases, especially of calves. We also found comma bacilli in the cesspools connected with the cowsheds in which animals were suffering. The exact connexion of these commas to cholera in man we had no opportunity of determining. Further, in some fish examined by me, I found comma bacilli. Similar observations were subsequently made by Cunningham, Remlinger, and Nouri.

That flies can transport cholera bacilli, which become adherent to the surface of their bodies, was demonstrated by Grassi, Catani, Tizzoni, and Simmonds at an early period. The experiments of Samtchenko, in 1893, in the Kiew laboratory showed that cholera micro-organisms could live and multiply within the bodies of flies. Both observations suggested the possibility of contamination of food and the indirect spread of cholera by flies. In 1894 there was an outbreak of cholera in the Gaya jail, and Dr. Macrae, of the Indian Medical Service, traced it to the drinking of milk contaminated by flies from a neighbouring latrine. Haffkine isolated the comma bacillus from the milk.

Since the epidemic of 1892, at Hamburg, it has been frequently observed that persons who have been in contact with cholera patients, or living in infected localities, may have cholera bacilli in their intestinal discharges although they are perfectly well and never have had cholera. They are in the same position as persons who have been in contact with diphtheria and get lodged in their throats the diphtheria bacillus, which is harmless to them but dangerous to others. A certain percentage of those attacked with cholera become chronic carriers. Early observers have examined the bile of fatal cases and established the fact that the cholera bacillus in a certain percentage of cases is to be

found in a pure culture in the bile. Major E. D. Greig, I.M.S., in 1913, confirmed these observations by investigations he was making at Puri during the pilgrim festival there. Out of 270 post-mortem examinations he found cholera vibrios in the gall-bladder in no fewer than 80 cases, and they were not only on the surface of the mucous membrane but also in the submucous tissue. This fact brings cholera into the same category as typhoid fever as regards the production of chronic cholera carriers. But cholera becomes even more closely allied to typhoid fever in its modes of dissemination when two very important facts, discovered and established by Major Greig[2] are taken into account. The first is that out of 55 cases of cholera he found the comma bacillus in the urine of eight of his patients, and in two of these cases the bacillus was recovered during the stage of convalescence, when the persons were going about their work. The other important fact is that he has found cholera bacilli in the lungs and other organs of some fatal cases of cholera.[2]

*Preventive Measures and Anti-cholera Inoculations.*

With cholera introduced into the war area, and its capability of spreading by carriers, by water, and by food or drink contaminated by infected stools or urine, by infected latrines and flies, contaminated boots, clothes, utensils, and hands, there is, when the season of the year and the condition of the population are favourable, a strong probability of much loss from this disease, and it is because of this probability that measures should at once be taken to prepare to combat this disease, and to protect the troops against cholera in Asia Minor, Egypt, and Europe.

It is obvious that disinfection of the latrines and the protection of water-supplies or purification of water are essential parts of any preventive measures. So are the isolation of the sick and the retention of convalescents until free of cholera bacilli in the fæces and urine. The disinfection of the latrines is necessary to prevent the contamination of flies which crowd to these latrines, and to prevent contamination of boots, &c. But as the conditions of warfare often render this difficult, if not impossible, and what may be done in our army may not be done in another, so that the one that takes precautions may suffer owing to neglect on the part of the other, it is important that the soldiers should be also protected by inoculation against cholera if that inoculation renders them less susceptible of being attacked by the disease.

There can be no doubt that the very extensive experiments with Haffkine's prophylactic against cholera, which were carried out in India on man and not on laboratory animals, 20 years ago, established the fact that these inoculations gave a very high protection against cholera attacks for at least one year. The experience gained in the cholera experiments was the guide to the preparation of the well-known Haffkine's prophylactic for plague, which has proved such a boon to communities attacked with plague. As most of the cholera vaccines—except those used in Upper India—were prepared in my laboratory at Calcutta, and as I had to collect the statistics relating not only to the experiments in Calcutta, for which I was responsible, but also with reference to the inoculations in different parts of India, in order to report on the subject, I can speak from experience as to their value.

[2] Indian Journal of Medical Research, vol. i., 1913.

Haffkine and myself were ably seconded in the work by my medical assistants, more especially by Dr. R. Sen, Dr. Jogendra Nath Dutt, Dr. Sasi Bhusan Ghose, and Dr. J. J. Chowdry. The only disappointing result was connected with the first experiment, when, as a matter of caution, the soldiers of the East Lancashire Regiment were inoculated with only weak vaccine in small doses: after the lapse of 14 months from the time they were inoculated cholera of a very virulent character attacked the regiment, but even under the unfavourable conditions mentioned—viz., 14 months since the inoculation, the use of weak vaccines and small doses, and the type of the attacking cholera particularly virulent—the inoculated suffered to a less degree than the non-inoculated, thus: 640 non-inoculated soldiers had 120 cases (18·75 per cent.) with 79 deaths (12·34 per cent.); 123 inoculated soldiers had 18 cases (13·55 per cent.) with 13 deaths (9·77 per cent.).

As regards all the other experiments, whether among prisoners in jails, or coolies in camps or tea gardens, or among the general population in the bustees of Calcutta, the protection was of a most marked character. But it was observed that, as a general rule, the period of immunity did not last for more than 14 months. It would take too long to give you all the results recorded, but they are to be found in my annual report for 1896, and a much fuller account, with details, are given in Haffkine's paper on Protective Inoculation against Cholera, published in India in 1913. I shall give you those of Calcutta and of the Cachar tea-gardens.

7,690 persons were inoculated against cholera in 27 months, mostly in those bustees, or collection of huts, in which the poorer people lived, and which were usually visited by cholera year by year. Every effort was made by persuasion to get half the members of the hut inoculated. In some cases we were successful in this respect, in others not. We inoculated in the huts and then waited events. A complete register, with all details relating to each of the inoculated and the non-inoculated in the hut, was carefully kept, and when a case of cholera was reported investigations were immediately made. In the 27 months cholera visited 71 houses, in which inoculated and non-inoculated persons were living in the same households, and the following table shows the days on which cholera occurred among the non-inoculated and inoculated:—

| | |
|---|---|
| Amongst the uninoculated members, after | — 1, 2, 3, 4, 5, |
| and among the inoculated of the same households, after | 0, — 2, 3, 4, |

6, 9, 12, 13, 15, 17, 22, 34, 37, 44, 57, 62, 63, 71, 95, 99, 109,

114, 118, 119, 120, 129, 132, 139, 143, 162, 189, 191, 203, — 240,
219

251, 271, 281, 284, 300, 309, 318, 319, 334, 356, 359, 362, 370, 372,

378, 383, 384, 389, 391, 393, 394, 401, 404, 408, 416, — 433, 446,
421

448, 453, — 472, 493, 498, — 673, — 720, 723, 724, 730, —
459 512 688 735

and 738 days.

and 738 days.

During the first four days after the inoculation, cholera occurred among both the inoculated and non-inoculated, though in a smaller degree among

the inoculated; after the first four days, there was a period of over a year when there was almost an absolute freedom among the inoculated, while among the non-inoculated in the same houses cases were occurring during the whole year; after 14 months cases began gradually to reappear among the inoculated as well as among the non-inoculated. Including the occurrences of cholera in the inoculated during the first four days the results for the whole period were as follows:—654 uninoculated individuals had 71 deaths (10·86 per cent.), while 412 inoculated in the same households had 12 deaths (2·99 per cent.).

The figures show that notwithstanding the incomplete protective effect of the first four days, and the gradual disappearance of the resistance in those inoculated with doses of weak vaccines only, which a number of the inoculated people received in the earlier days of the experiment, the mortality among the inoculated compared with that of the uninoculated was in the proportion of 1 to 3·63, giving a reduction of mortality of 72·47 per cent., or in other words, where inoculations were performed and which were subsequently visited by cholera there occurred for every 11 deaths amongst the uninoculated three deaths among a similar number of inoculated.

Even in regard to the first four days it was found that the mortality among the inoculated was 1·86 times smaller than among the non-inoculated, and that after that period the inoculated acquired a protection which, for a year at least, rendered them 22 times safer than the non-inoculated. In Haffkine's pamphlet on Protective Inoculation against Cholera, which covers a larger number of observations in Calcutta and a longer period—viz., 33 months instead of 27—he found that the number of deaths among the inoculated during the first four days was 1·39 times smaller than among the non-inoculated, and that during the period of immunity lasting 412 days or 14 months, the number of deaths among the inoculated was 15·79 times smaller than among the non-inoculated. It was also noticed that in bustees, where large numbers were inoculated, and which usually suffered from cholera, there was in many instances an exceptional freedom from the disease.

Gradually, as more experience was gained, the attenuated vaccine—Vaccine No. I.—was given up and Vaccine No. II., the fixed and strong vaccine, was used instead. The latter was employed in the Durbhanga jail in April, 1896, during the progress of a very fatal epidemic. The prisoners were paraded, and every second man or woman was inoculated. The result was that after the inoculation, among a strength of 99 non-inoculated, there were 11 cases (11·11 per cent.), all fatal; while among 110 inoculated, there were 5 cases (4·55 per cent.), with 3 deaths (2·73 per cent.).

The strong vaccine was used on a large scale on coolies of the Cachar tea-gardens who, inoculated and uninoculated, lived together in the same huts. The results are recorded by Dr. Arthur Powell:—6549 uninoculated had 198 cases (3·02 per cent.) with 124 deaths (1·89 per cent.); 6778 inoculated had 27 cases (0·47 per cent.) with 14 deaths (0·24 per cent.).

The two vaccines with which the Indian experiments were made, and which established their protective value, consisted of live cultures. Vaccine II. was a strong vaccine fixed in strength by a process in the laboratory, into which I need not enter, but which is frequently erroneously called Kolle's method by those who are not familiar with the fundamental experiments made by Haffkine in India. Vaccine I. was an attenuated preparation of Vaccine II.

Experience with the inoculations indicated that the weak vaccine was not so protective as the strong, and that the strong vaccine, though it caused, when inoculated into a guinea-pig without a preliminary inoculation of the weak vaccine, a necrotic swelling produced no such effect on man. In fact, the experiments on man brushed aside many of the theories and deductions formed from similar experiment on laboratory animals. Another experience was that it is not safe to rely on the vaccine giving protection for more than 14 months, and, lastly, that though the weak and strong vaccine protected against attacks of cholera, they had not the same protective effect against death as the two strong vaccines when an inoculated person was attacked with the disease. It was because of the experience gained with the cholera vaccine that a different mode of preparation of the vaccine against plague was adopted and because plague is a septicæmic disease the vaccine was devitalised. The value of the chemical product thus prepared and used as a prophylactic for plague, both in protecting against attacks of plague and reducing the chances of death when attacked, has been well established. In cholera some devitalised preparations of vaccines were used in India, but no opportunity was offered for testing their efficiency. It was the live cultures that were used, and it is generally agreed that they are more efficient than dead cultures. Haffkine holds the view that similar experiments are needed to test the value of the devitalised vaccines of cholera, as those which were employed to ascertain the efficacy of the live vaccines of cholera and the devitalised vaccine of plague.

There can be no doubt that devitalised vaccines, if efficient, are the best for administration on a large scale, and although there has been no scientific proof of their efficiency, based on researches on man, such as have established the value of the living vaccines of cholera and the devitalised vaccines of plague and typhoid fever, yet there are occasions on which they have been used in which evidence of a general character has indicated that they also are of great value and similar in character to those of typhoid and plague. When visiting Kitasato's laboratory in Japan in 1902, I found the devitalised cultures of Vaccine II. were being used with what was believed to be satisfactory results. Over 70,000 people were inoculated with this vaccine. Castellani has used the devitalised vaccines in Ceylon since 1905, combined with those of typhoid fever and paratyphoid A and B in one mixture.[3] This is a combination which saves and eliminates an unnecessary number of inoculations and which at the same time does not produce any antagonistic effect. The devitalised preparations were employed in Petrograd in 1908 and 1909 and in Batavia in 1910 and 1911, over 30,000 people being inoculated in each of these towns. Similarly the devitalised preparations were employed on a large scale by the Greeks during their military operations in Macedonia in 1913. The appearance of the first cases of cholera at Chataldja in the Turkish army, and later in the Bulgarian army, decided the Greek authorities to begin a general vaccination of the army and of the civil population of that part of

[3] Brit. Med. Jour., Nov. 7th, 1914.

Macedonia occupied by the Greek army. For this purpose two anti-cholera ambulances were attached to each division of the army. One was a rapidly travelling section containing a well-equipped laboratory and disinfecting stove, under the direction of a medical bacteriologist, and the other a stationary section, under the direction of a medical man, equipped with material necessary for transport and treatment of 25 cholera patients. Some 50 bacteriologists were employed, of whom 35 were civil and 15 military, and the inoculations were performed by the regimental medical officers and the civilian doctors in different localities, who were supplied with material and printed instructions. The organisation and administration of the anti-cholera campaign, both in the army and civil population, was placed in the hands of Professor C. Savas working in conjunction with M. Manoussos, the principal medical officer of the army. Professor Savas gives in the *Bulletin of the Office International d'Hygiène Publique*, of October, 1914, a very full account of the measures taken to carry out anti-cholera inoculations in the army and civil population in the infected area, and the effect they had in checking and suppressing the epidemic.

Approximately half a million persons were inoculated. This included about 150,000 soldiers, 350,000 civilians and refugees in Macedonia, and about 150,000 civilians and refugees in Salonika. In ten divisions, consisting of 114,803 soldiers, which took part in the Græco-Bulgarian War, there were only 2192 cases of cholera (19 per 1000). The incidence on inoculated and not inoculated was as follows:—

| | | | | | |
|---|---|---|---|---|---|
| 2 vaccinations. | 91,224 soldiers had | 644 cases | = | 7 | per 1000. |
| 1 vaccination. | 14,613 ,, | ,, 618 ,, | = | 42 | ,, |
| Not vaccinated | 8,968 ,, | ,, 634 ,, | = | 93 | ,, |

Those vaccinated only once had six times more cholera cases than those vaccinated twice, and those not vaccinated had 14 times more. If to the non-vaccinated be added 96 fulminating cases which are stated to have occurred among them, the ratio rises to 103 per 1000.

It was reported by the principal medical officers of divisions that as soon as the vaccination of these were finished, cholera disappeared as by enchantment, and only remained sporadic among soldiers sent to fill up vacancies, and who had not been vaccinated, and this though the soldiers remained in localities where cholera was prevailing amongst the civil population and the refugees.

Further, in the first division, specially in which the first cases of cholera occurred, and in which the double vaccination had been completed before hostilities commenced, there were only a few cases of cholera reported, and only among soldiers who had been sent from Athens and had not been vaccinated, whilst the other divisions which coöperated with them were attacked by the epidemic.

It was noticed, also, that in the towns and villages a double vaccination of the inhabitants was followed by a sudden decrease and prompt disappearance of the epidemic, and it is to these vaccinations that Professor Savas ascribes the control and suppression of the disease, both in the army and among the civil population of the infected towns, and the protection of Greece from the ravages of cholera when the population was under conditions where other sanitary precautions were difficult or impossible to adopt.

The success attending these inoculations is similar to that which I have had in regard to plague. In 1913 the whole population of Mombassa, resident and floating, was inoculated during an epidemic of plague, with the result that the disease was effectually stamped out. I had a similar experience in 1908 in West Africa. In both localities pneumonic, as well as bubonic, plague prevailed. The inoculations were, of course, combined with all other known methods of combating the disease.

Professor Savas attributes to the inoculations the saving of Greece from a serious epidemic; concludes that 99 per cent. of persons inoculated twice remained refractory to the epidemic; and classes anti-cholera inoculations among the most efficacious preventatives against cholera.

While recognising the extraordinary good effect which the inoculations had in checking and suppressing cholera in this particular campaign, there is one important point which has to be remembered in order to gauge the power of the inoculations at their true value, and that is that the type of cholera was not of a virulent character except in the 96 fulminating cases among the non-inoculated. The vaccines were capable of dealing with the epidemic, but it was a comparatively mild epidemic that was dealt with.

There is much variancy in the virulence of epidemics of cholera. I have seen an epidemic in which the mortality was as high as between 80 and 90 per cent., and I have seen others which have had a mortality of less than 20 per cent. It is important in preparing vaccines against an epidemic to obtain for the inoculations a natural strain of cholera bacillus from as virulent a type of cholera as possible, in order that the immunising effect shall be well above the type of the epidemic, and in order that it can be maintained with ease at a high and fixed state of virulence in the laboratory. Whether the present Russian strain will be the most effective to combat any natural exaltation of epidemics due to recrudescences or importation under the conditions mentioned, may well be a matter of doubt, seeing that since 1911 its virulence and capacity to spread have been diminishing.

I think Castellani's method of mixing the vaccine is well worth consideration as being practical and convenient. It is not doing anything different from inoculating on one arm with typhoid vaccine and vaccinating on the other at the same time against small-pox.

## SOME CASES OF BLOOD INFECTION BY AN ANAEROBIC ORGANISM SECONDARY TO WOUNDS.

BY ADRIAN STOKES, M.D.DUB., F.R.C.S.IREL.,
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DURING the months of October, November, December, and January, while doing bacteriological work in connexion with the clearing hospitals, a series of cases in wounded men occurred giving the same clinical and bacteriological picture. The clinical picture was characterised by four separate features: (1) the colour of the patient, which was a dirty yellow, something like the colour of a dirty deal table; (2) the soft, running pulse, which was always very rapid, often uncountable, and in the later stages irregular; (3) uncontrollable vomiting; and (4) the rapid onset of the condition after the injury. The presence of obvious gangrene at the site of the wound was inconstant; in three

of the six cases reported it was present, in the remaining three it was absent. Death occurred in every case with great rapidity, 48 hours being the average time; one case survived 80 hours. The patient was always conscious to the end and in a state of "euphoria."

It appeared probable from the great similarity of the symptoms and the invariable result in every case that there might be a common cause. The presence of the bacillus of malignant œdema was suggested as the probable explanation. An attempt to isolate the organism from the wounds having failed in two cases, it was thought that it might be found in the blood stream, and accordingly blood cultures were made in the series of cases reported. In six cases a culture was obtained by this method of an organism which was indistinguishable from the bacillus aerogenes capsulatus. The blood cultures were made in three cases immediately after death from the heart's blood, and in the three remaining cases the blood cultures were ante mortem. Two patients died after a week in hospital from typical gas gangrene; the culture was negative in one case ante mortem and in the other post mortem. The former case had been twice operated on in attempting to stay the spread of the gangrene; in the latter it was thought that the patient would not stand re-amputation—in this case the culture was ante mortem, and gave a positive culture of staphylococcus aureus. These two cases seem to make it probable that the series in which positive cultures of an anaerobic organism were obtained may be a separate and distinct condition. The number of cases in which it was possible to verify the diagnosis of blood infection by culture is small; on the other hand, there were no negative cultures in cases which were regarded as typical of the condition. The six cases in which blood cultures were positive were as follows:—

| Case. | No. of c.c. | Place. | Hours of survival after wound. | Time of blood culture. | Projectile. | Wound. |
|---|---|---|---|---|---|---|
| 1 | 4 | Braisne. | 50 | P.M. | Shell. | Compound, femur. |
| 2 | 4 | Poperinghe. | 40 | P.M. | Shell. | Compound, femur. |
| 3 | 4 | Poperinghe. | 60 | P.M. | Bullet. | Compound, humerus. |
| 4 | 4 | Lillers. | 48 | A.M. | Shell. | Compound, humerus and femur. |
| 5 | 1 | Béthune. | 80 | A.M. | Bomb. | Arm, no fracture. |
| 6 | 4 | Lillers. | 40 | A.M. | Shell. | Compound, femur. |

The technique adopted was the same in all the cases. Shake cultures in glucose-agar were made as soon as possible after the blood was taken; at the same time ordinary aerobic blood plates were made which in every case were negative at the end of 48 hours. In the shake cultures bubbles of gas were observed in all the cultures on the next day. In five of the positive cultures gas appeared with great rapidity, in two it was apparent in six hours, and in three it appeared in ten hours. The culture was profuse and the formation of gas abundant, the agar being forced to the top of the tube. Growth ceased within an inch of the surface of the medium and seemed most active about two inches from the surface. The organism was a Gram-positive bacillus, most of the bacilli taking the Gram stain well, a few individuals losing the stain, and a few showing a beaded appearance. The bacilli varied a good deal in length, forms longer than anthrax being common and forms as short as B. coli were found; it did not form spores in glucose-agar and died out in one week in that medium. In one culture (Case 4) capsules were stained; in the others they were apparently present, but it was not possible to stain the actual capsule. The colonies were dense and opaque, and on McLeod's plates made with blood-glucose-agar they showed a distinct hæmolytic power. The organism is non-motile. It was possible by making use of the hæmolysis to isolate the same microbe from two quite harmless wounds, one in the leg, the second in the thigh. One culture (Case 4) killed a guinea-pig in 15 hours; another culture (Case 5) made a pig very ill, but it did not die; these were the only cultures injected into animals. There were a large number of cases presenting the same clinical picture in which it was not possible to do blood cultures to verify the diagnosis.

From the very rapid onset of the symptoms it is probable that the infection of the blood stream is either at the time of injury or very soon after it.

## NOTE ON A CASE SHOWING THE FREQUENT OCCURRENCE OF AN AURICULO-VENTRICULAR RHYTHM ASSOCIATED WITH A LONG A-C INTERVAL.

BY A. W. FALCONER, M.D. ABERD., M.R.C.P. LOND.,
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IN describing the following case I shall assume it to be proved that under normal conditions the heart beats in response to a stimulus formed in the sino-auricular node, and shall refer to this rhythm as the S.-A. rhythm. I also shall assume it to be proved that, under certain conditions, the seat of the impulse formation in the mammalian heart may temporarily or permanently shift from its normal site in the sino-auricular node to some other portion of the heart, more particularly to parts containing specialised tissue of the same nature as the sino-auricular node.

In addition to the sino-auricular node the chief mass of this specialised tissue is the auriculo-ventricular node of Tawara and the bundle of His. Since the discovery of this tissue in the mammalian heart a large amount of experimental work has been carried out by Engelmann, Lohmann, Hering, Rothberger and Winterberg, Ganter and Zahn, Kuré, Meek and Eyster, Lewis, and others on the relations existing between the sino-auricular and auriculo-ventricular nodes.

These investigators have shown that procedures which depress, injure, or extirpate the sino-auricular node, such as cooling, cutting, clamping, burning, and poisoning with certain drugs such as formalin, bring on a condition in which the normal interval between auricular and ventricular contraction becomes markedly shortened or even negative, the contraction of the auricle following, instead of preceding, the ventricular contraction. An exactly similar condition is produced by procedures which stimulate the auriculo-ventricular junction such as left accelerator stimulation.

Most authorities are now agreed that in these circumstances the sino-auricular node has ceased to act as the pace-maker of the heart, and that the auricles and ventricles then respond to a rhythmical stimulus originating in some part of the auriculo-ventricular node, which stimulus throws the

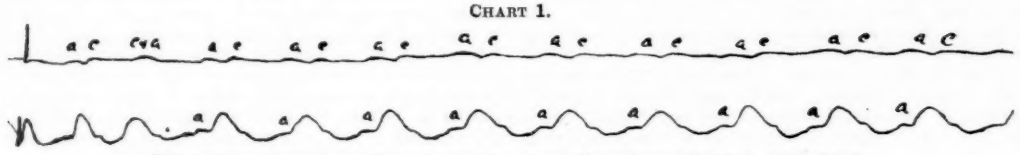
auricles and ventricles into more or less simultaneous contraction. I shall refer to this rhythm as the auriculo-ventricular rhythm.

The following case was admitted into the Aberdeen Royal Infirmary on April 7th, 1914, under Professor A. W. Mackintosh, to whom I am indebted for permission to publish it.

lessness on exertion, and a fortnight before admission to hospital he had to give up work on account of severe dyspnœa, which was brought on by the slightest exertion.

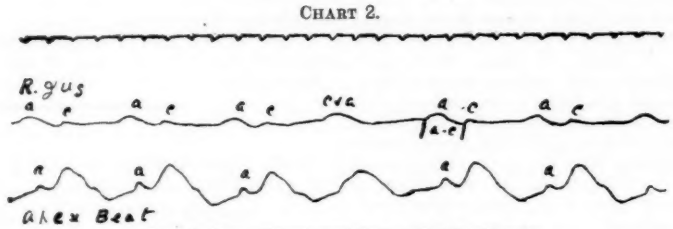
On admission to hospital the patient was able to lie quite comfortably in bed. There was no œdema and the urine was free from albumin. The liver was not demonstrably enlarged. The Wassermann reaction was strongly positive in the blood. The apex beat of the heart was in the fifth intercostal space,

CHART 1.



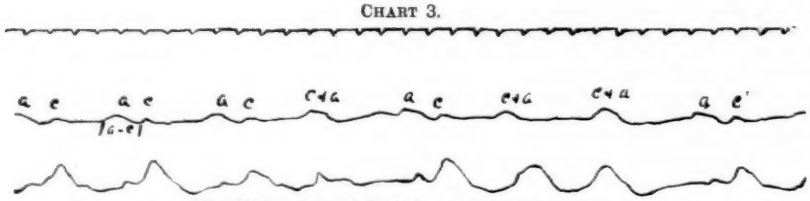
Upper tracing: jugular pulse. Lower tracing: apex beat. Note extrasystole ($c + a$) at second cycle.

CHART 2.



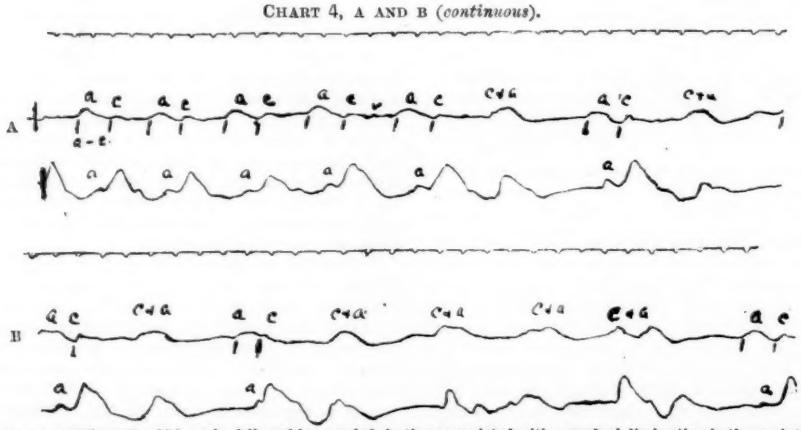

Same rhythm, with extrasystole ($c + a$) at fourth cycle.

CHART 3.



Note the two extrasystoles ($c + a$) following one another.

CHART 4, A AND B (*continuous*).




Extrasystole ($c + a$) follows the fifth cycle, followed by coupled rhythm, associated with a gradual diminution in the $a$-$c$ interval until in the fifth and sixth couples the auricles and ventricles contract simultaneously, the $a$-$c$ interval reappears at the seventh couple.

The patient was a male, aged 33, a labourer. He stated that he had never had rheumatism, but had suffered from some form of venereal disease in 1905. Up to three weeks before admission to hospital he had felt quite well and able to do his work without any discomfort. He then began to suffer from pain over the epigastrium. This pain was brought on by exertion and diminished by rest. About the same time he also began to be troubled with severe breathone inch outside the nipple line. There was a mitral systolic murmur and the sounds over the aortic and pulmonary areas were almost inaudible.

The heart's action presented several interesting irregularities. On the day after admission the heart-rate was 150 per minute and a polygraphic tracing showed a coupled rhythm. Each normal

heart beat was followed by an extrasystole with a compensatory pause. The *a-c* interval was just one-fifth of a second. During the extrasystole there was only one wave in the jugular tracing which was synchronous with the wave in the carotid tracing. This wave was larger than the *c* waves of the normal cardiac cycles and suggested that the auricles and ventricles were in simultaneous contraction. The patient was put on ℥i of tincture of digitalis daily, and this was continued for eight days. After ℥ii of the digitalis the pulse-rate fell to 75 per minute, and apart from an occasional extrasystole the pulse became regular for considerable periods. Chart 1 is an example of this rhythm. Except for an extrasystole occurring at the second cycle the heart's action is perfectly regular. The jugular pulse shows well-marked *a* and *c* waves corresponding to each cardiac cycle. The *a-c* interval is prolonged. The apex-beat tracing shows an unusually well-marked *a* wave preceding the ventricular rise. Chart 2 shows the same rhythm with the occurrence of an extrasystole at the fourth cycle. The *a-c* interval is definitely prolonged. The extrasystole is fully compensatory and the jugular tracing shows only a single wave *c* synchronous with the ventricular rise in the apex-beat tracing. This *c* wave, however, appears at exactly the moment when a normal auricular contraction is due, and from a polygraphic tracing alone it is impossible to say whether the simultaneous contraction of auricles and ventricles is due to a ventricular or an auriculo-ventricular extrasystole. Occasionally two such extrasystoles followed one another, as seen in Chart 3.

In addition to these extrasystoles the heart's action showed the frequent occurrence of the irregularity seen in Chart 4, A and B. In this tracing the first five cycles show, both in the jugular and apex-beat tracings, auricular and ventricular waves with a prolonged *a-c* interval. Following the fifth cycle is an extrasystole of the same type as in Charts 2 and 3. From here onwards we have a coupled rhythm with a gradual diminution in the *a-c* interval of the first beat of the couple till in the fifth and sixth couples the *a-c* interval has completely disappeared, and the auricles and ventricles are contracting simultaneously. At the seventh couple the *a-c* interval again appears. This peculiar rhythm frequently appeared during the patient's stay in hospital, and always presented the same features.

This gradual disappearance of the *a-c* interval can only be attributed to a temporary change in the site of the pace-maker of the heart from the sinus node to some part of the A.-V. node or bundle, probably the result of an irritative lesion in that neighbourhood. As corroborative evidence we have the presence of extrasystoles and a prolonged *a-c* interval. The fact that in the experimental production of an A.-V. rhythm the *a-c* interval shows a gradual shortening and not an abrupt disappearance has been demonstrated by Hering and others. It has been suggested that this gradual change depends either on a gradual shifting or wandering downwards of the pace-maker or to changes in conduction time.

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Aberdeen.

## A CASE OF ACHOLURIC JAUNDICE.

BY W. HARMENS, M.B., B.C. CANTAB.

THE following case presents several points of interest both as regards diagnosis and treatment.

The patient is a married woman, aged 27, who has two children, both girls, aged 5½ and 2½ years respectively. In neither is there any enlargement of the spleen. Her maternal grandmother died in rather early life from a "floating tumour" in the abdomen. Her mother died seven years ago from "hæmorrhage," having been in bed a month. Splenic enlargement had been noticed 16 years before her death. During that time she had much ill-health with repeated attacks of jaundice. She was always more or less "yellow." When the patient was 16 years old a swelling was noticed in her left side. Jaundice appeared for the first time 18 months ago, and she lost considerably in weight. She complained of inability to do her work properly, loss of appetite, and feeling generally ill. A considerable amount of pain was present in the left side of a dragging nature, but it was never acute. She was sent to St. Thomas's Hospital about 18 months ago with the diagnosis "splenic enlargement." There she gradually improved under treatment. The spleen extended to a point at the level of the umbilicus. The liver was also slightly enlarged. A moderate degree of anæmia was present. Her blood count at that time was: red cells, 3,000,000; white cells, 9200. An X ray examination was made but was negative.

In the beginning of May, 1914, the same symptoms reappeared. A slight degree of jaundice developed, which gradually became deeper but was never intense. The pain in the left side was nearly always present and often severe, and prevented her carrying on her household duties. She looked pale and anæmic, and said she had lost flesh. There was marked enlargement of the spleen, which extended to a point half an inch below a horizontal line drawn through the umbilicus. No tenderness was present. The liver was slightly enlarged, and extended from the sixth rib above to a point three-quarters of an inch below the costal margin. Hæmic murmurs were present over the heart. The urine was very dark in colour, acid in reaction, of specific gravity 1024, and contained no albumin or sugar. Bile pigment was not present. There were no signs of disease elsewhere. In view of her symptoms I sent her to St. Thomas's Hospital, where she was admitted under Dr. H. G. Turney. On July 9th a differential blood count was made by Dr. L. S. Dudgeon as follows: Erythrocytes, 4,000,000; slight poikilocytosis present; rouleaux formation fair; fibrin formation fair. Hæmoglobin, 90 per cent. Colour index, 1·1. Leucocytes, 10,240; polynuclear neutrophiles, 64·25 per cent.; polynuclear eosinophiles, 2·25 per cent.; small lymphocytes, 25·75 per cent.; large lymphocytes, 3·50 per cent.; large hyaline, 3·25 per cent.; coarsely granular basophiles, 1·00 per cent. No nucleated red cells were seen. The coagulation-time was normal. The fragility of the red cells, tested by sodium chloride in distilled water, was very markedly increased as in congenital cholæmia.

| NaCl. | Normal. | Case under discussion. |
|---|---|---|
| 0·1% ... | Complete hæmolysis ... | Complete hæmolysis. |
| 0·2% ... | ,, ... | ,, |
| 0·3% ... | ,, ... | ,, |
| 0·4% ... | Tinge ... | ,, |
| 0·5% ... | No hæmolysis ... | ,, |
| 0·6% ... | ,, ... | Faint tinge. |
| 0·7% ... | ,, ... | Trace. |
| 0·75% ... | ,, ... | No hæmolysis. |
| 0·8% ... | ,, ... | ,, |

A Wassermann reaction was done but was negative. While in hospital the temperature was slightly raised, 100·2° F. being the highest recorded. The mean was about 99·4°.

For reasons which will presently be discussed it was decided to remove the spleen. The operation was performed on July 27th by Mr. H. Betham Robinson. The anæsthetic used was chloroform and ether. The peritoneum was found to be adherent in many places. The patient stood the operation well, and had the stitches removed on the seventh

day. On August 5th another examination of the blood was made as follows:—Erythrocytes, 3,612,500; rouleaux formation good; fibrin formation good. Hæmoglobin, 75 per cent. Colour index, 1. Leucocytes, 7800; polynuclear neutrophiles, 42·75 per cent.; polynuclear eosinophiles, 2·75 per cent.; small lymphocytes, 32·00 per cent.; large lymphocytes, 9·00 per cent.; large hyaline, 12·00 per cent.; and coarsely granular basophiles, 1·5 per cent. On August 12th, the day of her discharge from hospital, the fragility of the red cells was much less than at the previous examination.

NaCl in distilled water.

| | | |
|---|---|---|
| 0·1 | per cent. ..... | Complete hæmolysis. |
| 0·2 | ,, ..... | ,, |
| 0·3 | ,, ..... | ,, |
| 0·35 | ,, ..... | ,, |
| 0·52 | ,, ..... | Faint trace. |
| 0·55 | ,, ..... | No hæmolysis. |
| 0·6 | ,, ..... | ,, |

The patient's weight on admission was 7 st. 6 lb. and on her discharge 7 st. 12½ lb. Her colour had greatly improved, and her appetite was good. On Oct. 1st the fragility of the red cells was again tested and was found to be practically normal.

NaCl in distilled water.

| | | |
|---|---|---|
| 0·38 | per cent. ..... | Complete hæmolysis. |
| 0·52 | ,, ..... | Trace. |
| 0·6 | ,, ..... | No hæmolysis. |

For a time after the operation the patient had a slight limp and a dragging pain in the left side. These symptoms have completely disappeared, and she says she feels perfectly well. She is able to carry out her household duties and look after her husband and children. She is delighted with the change in herself since the operation.

Two clinical groups of acholuric jaundice may be recognised: in the one the condition is congenital and hereditary or familial, in the other acquired and lacking the hereditary tendency. In other respects the course and symptoms of the two groups are identical. The case just described seems to be a compromise between the two types. On the one hand the hereditary tendency is very marked, while on the other there was no appearance of symptoms till about the time of puberty. Of course it is possible, as there was never anything like persistent jaundice, that the case was really congenital but latent.

With regard to the indication for operation, it must be granted that the mere diagnosis of acholuric jaundice is not in itself sufficient. The condition, whether congenital or acquired, is compatible with many years of healthy life. In this patient the impairment of general health was very considerable. Abdominal pains were more or less persistent. They were due probably to the dragging of the splenic tumour so far as the more chronic ones were concerned, but in addition to these there were others of a different type and of a different distribution which occurred synchronously with the attacks of jaundice, and were dependent to all seeming upon changes in the gall-bladder and ducts. These symptoms in themselves afforded sufficient justification for the removal of the spleen, especially as the organ was of moderate size and its extirpation promised to be attended with the minimum of risk. But in addition to these actual inconveniences from which the patient might be promised relief there were others looming in the future which could not be ignored. The mother died from hæmatemesis 16 years after the enlargement of the spleen was diagnosed, and there is no ground for suspecting in her case either alcoholic excess or the presence of a gastric ulcer. It is quite certain that the exaggerated hæmolysis which is the underlying condition of acholuric jaundice must throw an enormous increase of work upon the liver, and there is clinical evidence of this in the enlargement of that organ. Eppinger has shown that even during apparently quiescent periods of acholuric jaundice the excretion of urobilinogen may be increased ten- or even twenty-fold, and increase of function to this extent must surely entail some danger of structural change in the long run in the organs concerned. The history of the mother's illness is, to say the least, suggestive of the same sequence of pathological events that we find in Banti's disease, and in both mother and daughter we find the same history of repeated attacks of jaundice with enlargement of spleen. So far as I am aware, the only change hitherto described as occurring in the liver in these cases is the accumulation of pigment-bearing cells without cirrhosis, but pathological evidence of any sort is far too scanty for a final verdict.

I wish to acknowledge the great kindness of Dr. Turney in the help he has given me, and to thank both him and Dr. Dudgeon for the use of the notes on the case.

Addlestone, Surrey.

## CEREBRO-SPINAL MENINGITIS: MENINGOCOCCI FOUND IN PERIPHERAL BLOOD FILMS.

BY ALFRED C. COLES, M.D., D.SC., F.R.S. EDIN., M.R.C.P. LOND.,

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Dr. A. D. Edwards, medical officer of health of Bournemouth, has given me the following notes of this septicæmic type of case of cerebro-spinal meningitis.

The patient, a male aged 33, a carpenter, was at work on the morning of March 15th, when he complained of pains in the lower part of the back, felt shivery, and soon afterwards vomited. After this sudden onset the patient became rapidly worse, and by the evening he complained of "aching all over." A purpuric rash appeared on the following morning on the brow and face. Retraction of the head was not present at this or any other stage of the illness. Dr. Edwards saw the patient for the first time on the afternoon of March 16th when his temperature was normal, but the pulse could not be felt. There was a well-marked purpuric rash on the face consisting mainly of more or less circular spots, dark purple in colour. There was also extravasation of blood on the trunk, especially on the buttocks. The patient was conscious and complained of "pains all over," so that he could not rest easily in bed. Pains in the knees and elbows were marked, especially on movement; for this reason Kernig's sign was not available. On lumbar puncture 25 c.c. of cerebro-spinal fluid were removed, and antimeningococcic serum was injected to the same quantity. The fluid came out slowly; it was mixed with blood, but otherwise was not very turbid. No growth occurred on blood serum or on agar, although there was blood in the inoculating fluid. The patient's temperature rose on the night of March 16th to 102° F., but fell on the morning of the 17th. There was diarrhœa on the night of March 16th, and the vomiting which had been occasional became frequent on the morning of the 17th. During that morning the patient became comatose and died on the afternoon of the 17th, 50 hours after the onset of the first symptom.

Clinically the case appeared to be a picture of profound septicæmia; there were no signs or symptoms to indicate the presence of meningitis. This latter condition was suspected mainly by the process of exclusion, and because the epidemic disease was known to be prevalent in certain military centres at the present time.

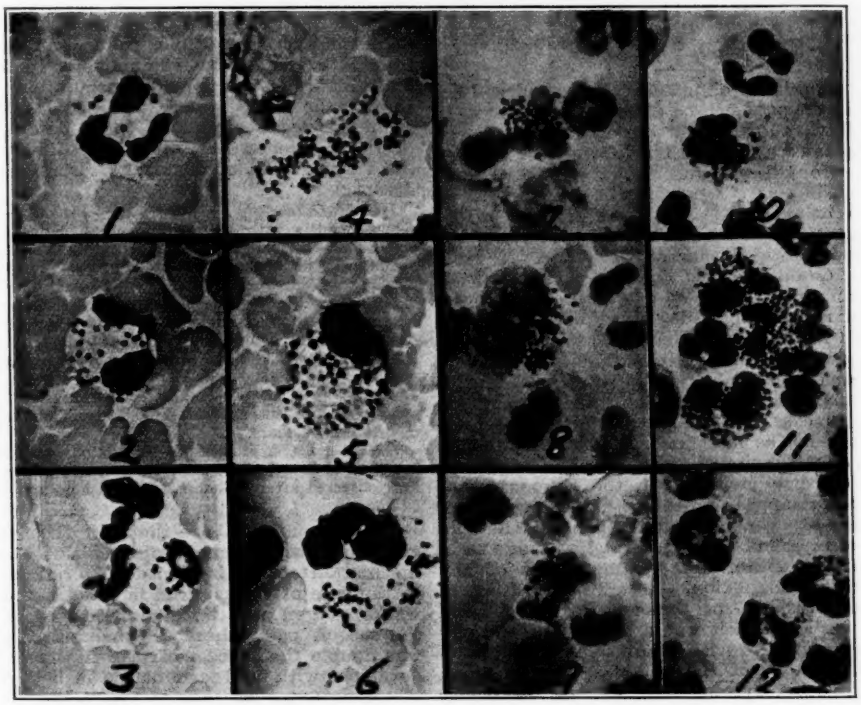
On March 17th, at 11.30 A.M., I made films from the blood obtained by puncturing the ear and

procured about 20 c.c. of spinal fluid which had been drawn off on the previous day. The latter had a very slight deposit, which appeared to the naked eye to be almost entirely blood. On microscopic examination it was found to consist of red corpuscles with a few white cells, but no meningococci could be detected.

The blood films made from the blood of the ear were stained by Giemsa's method, and showed a moderate leucocytosis of about 12,000 to 13,000. A differential count showed the following percentage of leucocytes: Polymorphs, 80; large mononuclears, 19; lymphocytes, 1; eosinophiles, 0; in other words, the leucocytes were almost entirely polymorphonuclear, transitional, or large mononuclear types, many of which were vacuolated.

Whilst counting 2000 leucocytes, 10 were found to contain typical meningococci. Under a low power (8 mm. objective and compensating ocular 6) these appeared very much like deeply stained blue granules lying in the protoplasm of the cell, and when examined under the immersion lens they were found to be typical bean-shaped diplococci indistinguishable from gonococci. (I have carefully compared the meningococcus, or, to give it its full name, diplococcus intracellularis meningitidis (Weichselbaum), as found in the peripheral blood or in the cerebro-spinal fluid, with the gonococcus in urethral pus under a magnification of 3000 diameters, and I must confess that I can find no morphological difference. Both show considerable variations in size, but possibly the latter organism more frequently appears to lie in a capsule or vacuole.) The number of organisms lying in the protoplasm varied; in some cases there were only one or two pairs, in other cases the protoplasm was filled, but on an average there were about six in an infected leucocyte. (See microphotographs.)

With Giemsa's stain the meningococci stain a deep blue colour, but when there are many organisms lying in the protoplasm it is interesting to note that whilst the majority take the basic stain and appear blue, a certain number of them are faintly stained with the eosine and appear as very indistinct pale-pink bodies, but they still retain their typical bean-shaped character. Free diplococci were seen but they were infrequent, though occasionally a group consisting of several organisms was found.




Microphotographs of Meningococci and Gonococci. × 1000 diameters.

FIGS. 1 to 6.—Meningococci from peripheral blood showing variations in the number of organisms in the leucocyte. FIG. 4, free meningococci.
FIGS. 7, 8, 9.—Meningococci from cerebro-spinal fluid of another case of cerebro-spinal meningitis.
FIGS. 10, 11, 12.—Gonococci from urethral pus, showing the close resemblance of these organisms to meningococci.

The discovery of a comparatively large number of meningococci in films made from the peripheral blood suggests, to my mind, the following questions:—

1. As the cultivation of the meningococcus is a difficult and not very successful means of recognising the disease (Eisler has only obtained positive cultures from the blood in 10 out of 41 cases), are the organisms to be commonly found in films made from the peripheral blood in cases of cerebro-spinal fever, and is this a practical method of diagnosis, or are the meningococci only to be found in the septicæmic type of the disease?

2. As the meningococcus may occur in large numbers in the peripheral circulation, and as it is a very delicate short-lived organism very susceptible to drying, may not the disease be

conveyed by some blood-sucking insect? Dr. Edwards tells me that one of his very rapidly fatal cases complained of having been bitten on the back of the neck by a body louse a short time before his illness, *post* or *propter hoc*.

I would like to acknowledge my indebtedness to Dr. Edwards for permission to examine this case, for the clinical notes he has kindly supplied, and for his interest in my results.

Bournemouth.

## INJECTION OF OXYGEN AS A TREATMENT FOR TETANUS.

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As B. tetani is an obligate anaerobe and will not develop in the presence of the smallest amount of oxygen, it was thought that the injection of oxygen into a tetanus wound, and into the tissue immediately surrounding the wound, would be more or less efficacious as a treatment, or auxiliary treatment, in delaying the onset of the disease or rendering it less acute, if not in preventing the development of the disease altogether.

In the *Canadian Medical Association Journal* for November, 1914, one of us (H. O. H.) reported beneficial results from the subcutaneous injection of oxygen in cases of dyspnœa of tuberculosis, gas poisoning, pneumonia, œdema of lungs, bronchial asthma, and operative cases, and the success with this treatment led to the surmise that it might be valuable in cases of tetanus and other anaerobic infections, such as malignant œdema, symptomatic anthrax, &c. The prevalence of tetanus infections, causing extreme mortality in the European war zone, made it appear probable that a few animal inoculation experiments with tetanus and the subcutaneous injection of oxygen might be of use in ascertaining whether the treatment was of any value in this connexion. Accordingly, Dr. G. C. Creelman, president of the Ontario Agricultural College, was asked if it would be possible to carry on the experiments with tetanus in the bacteriological laboratory of the College. Dr. Creelman readily gave his consent and referred the matter to one of us (D. H. J.) in charge of the laboratory. As a result, the following experiments were planned, in which we were respectively responsible for the oxygen injections and the cultures, inoculations, and subsequent observations.

*Cultures used.*—A fresh culture of B. tetani was obtained from the Parke Davis Co., and subcultures were made from this in dextrose beef-extract bouillon and dextrose beef-extract agar, incubated under anaerobic conditions at 37° C. for three days, and kept later at room temperature.

*Virulence tests.*—To test the virulence of the cultures a guinea-pig, weighing 790 grammes, was inoculated subcutaneously on the inner side of the right thigh with two drops of a three-day old bouillon culture. After 24 hours tetanic symptoms were shown by the extension backwards and outwards in a rigid condition of the inoculated leg. Five hours later respiration was laboured, and the hinder half of the body was partially paralysed, being dragged around the cage with difficulty; 12 hours later—a total of 41 hours from the time of inoculation—the animal was found dead.

*Oxygen injection experiments.*—The oxygen injected was obtained from some oxone cartridges as prepared by the Roessler and Hasslacher Chem. Co., New York, from which oxygen was generated in the portable oxygen generator made by the Hartz Company, of Toronto, Cleveland, and Detroit. The oxygen escapes by means of a long rubber tube, at the distal end of which is an aspirating needle which is inserted into the subcutaneous tissue. The tube is then oiled, and by a pumping action of the hand the oxygen is forced through the needle.

### *Series I.*

In this series four guinea-pigs were used. They were divided into two pairs. All four were inoculated with B. tetani, and one member of each pair was given an injection of oxygen near the point of inoculation, while the remaining member of each pair was kept as a control. Sufficient oxygen was given to raise an emphysema from 3 to 5 centimetres in diameter in the immediate region of the point of inoculation. (*Note.*—In all the cases where tetanus developed the symptoms were similar to those described above in the virulence test, the only difference being the varying time of onset and termination of the disease.)

*Pair 1, Guinea-pig 1* (*760 grammes—control*).—Inoculated subcutaneously with half a drop of an eight-day bouillon culture on inner side of right thigh. Result: Tetanic symptoms first observed after 36 hours. Convulsions and death after 72 hours.

*Guinea-pig 2* (*760 grammes*).—Inoculated same as No. 1, but oxygen injected immediately after. Result: After 18 days no tetanic symptoms had developed; guinea-pig well, having shown but little inconvenience at any time.

*Guinea-pig 3* (*840 grammes—control*).—Inoculated with one drop of eight-day bouillon culture. Result: Tetanic symptoms first observed after 30 hours. Convulsions and death after 46 hours.

*Guinea-pig 4* (*720 grammes*).—Inoculated as above and given injection of oxygen immediately. Result: Tetanic symptoms first observed after 44 hours. Convulsions and death after 84 hours.

We see from the above that with the first pair of guinea-pigs where half a drop of culture was used for inoculation tetanus developed and terminated fatally in the case of the control, but had not developed where oxygen was injected 18 days later. With the second pair, where the amount of inoculum was double that used with the first pair, tetanus developed with fatal termination in both cases, but the appearance of tetanic symptoms and subsequent death were considerably deferred by the one injection of oxygen.

### *Series II.*

For this series the agar-plate cultures were used. To inoculate, a puncture was made through the skin with a sterile sharp instrument, then a platinum needle was drawn through the surface growth of the culture and inserted into the wound. As with Series I., four guinea-pigs were used. They were divided into pairs, and one of each pair was inoculated and immediately given a subcutaneous injection of oxygen, and the other member of each pair was inoculated and not given oxygen.

*Pair 1, Guinea-pig 5* (*630 grammes—control*).—Result: Tetanic symptoms first observed after 38 hours. Death followed tetanic convulsions after 66 hours.

*Guinea-pig 6* (*700 grammes*).—Oxygen injected after inoculation. (*Note.*—Some of the oxygen injected bubbled outward through a drop of blood at the point of inoculation, indicating that the wound was being well bathed with the oxygen, which would thus be brought into direct contact with the bacteria and prevent their development.) Result: Tetanus symptoms first observed after 90 hours. Eight days after inoculation the pig was alive and active on three legs, and able to eat hay. The inoculated leg had been more or less extended and rigid for the last three days. It looked

very promising for an ultimate recovery as though an active immunity was being established.

*Pair 2, Guinea-pig 7 (700 grammes—control).*—Inoculated. Result: Tetanic symptoms first observed after 36 hours. Death following tetanic convulsions after 50 hours.

*Guinea-pig 8 (840 grammes).*—Inoculated and given oxygen injection. Result: Tetanic symptoms first observed after 51 hours. Death following tetanic convulsions after 72 hours.

With this pair of guinea-pigs, as with the second pair in Series I., we noticed that while tetanus with fatal termination developed in both cases the time of onset of the disease and of death was much delayed by the oxygen injection.

We take it for granted that the reader is acquainted with the modern treatment of tetanus—e.g., use of antitetanic serum, hypodermic injections of dilute carbolic acid solution, anæsthesia for spasms, the darkened room, chloretone, &c.—but draw attention to the fact that the only treatment used in these experimental cases was the direct deep injection of oxygen into the wounds, and we assume that if the beneficial effects in these cited cases were due to the injection of the oxygen other anaerobic infections might be at least equally well benefited.

We do not say that these limited experiments prove conclusively that subcutaneously injected oxygen is a sure cure for tetanus, but we think the results obtained warrant their publication, and we feel justified, in view of the fatalities that are occurring in the war zone from tetanus, to call the attention of the medical men in attendance, and others, to the beneficial effects obtained from this treatment as in the above cases, with the hope that it may in some measure aid in the prevention of, or recovery from, the disease with the wounded.

A fuller account of the experiments will be published later, and further experiments are planned which it is intended shall be carried out in the immediate future.

# Clinical Notes:

## MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

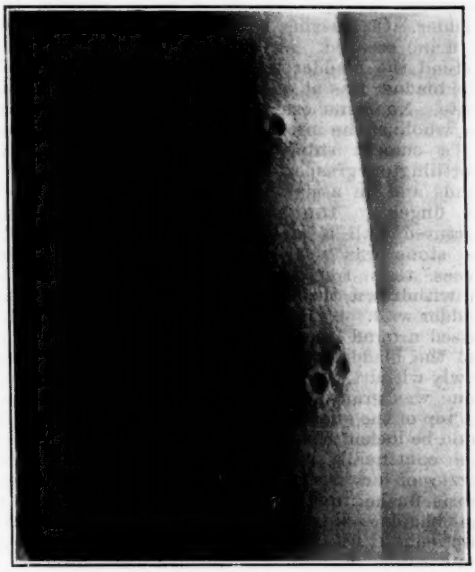
### A CASE OF ANTHRAX.

BY J. A. BENNETT, M.B., B.S. DURH.,
CAPTAIN, ROYAL ARMY MEDICAL CORPS.

ON account of anthrax being comparatively uncommon the following notes may be of interest to readers of THE LANCET.

*History.*—A driver in the R.F.A., age 30, was admitted to Connaught Hospital, Aldershot, with three pustules on his forearm. For about six months the patient had been working amongst horses and in stables, but had no recollection of having had any abrasions or the like. On March 3rd he noticed three spots on his forearm, two close together 2 inches below the end of the elbow, and the other 2 inches nearer the wrist. He felt "out of sorts," ascribing his condition to a cold, and it was on account of the latter that he reported himself sick on the 4th. The pustules had then the following appearance, small ulcers, ¼ inch in diameter (those shown in the illustration are slightly smaller than natural size), with elevated edges, the latter being due to small vesicles having coalesced and formed a complete ring surrounding a dry, depressed centre of a blackish-purple colour. Immediately outside this ring was an angry red area of about a quarter of an inch, on which were minute discrete vesicles irregularly concentrically placed. The whole skin of the forearm was indurated and inflamed. There was no febrile or constitutional disturbance of note.

*Treatment.*—After examination of many cover-glass preparations stained with watery methylene blue made from the pustules no B. anthracis were found, but as the appearance of the pustules was so suggestive of anthrax the patient was given an anæsthetic and the pustules were excised, including the vesiculated area. The raw surface left was cauterised with pure carbolic. Readily assimilated nutritious fluid nourishment and stimulants were given.



Pustules on the forearm in a case of anthrax.

*Bacteriological examination.*—Agar tubes and plates were inoculated with serous fluid aspirated from the pustules after excision, 24 hours' incubation showing a rich growth of staphylococcus albus, which obscured any other growths which may have been present; incubation was continued for three days. A flask of normal saline inoculated with some of the dense growth by means of a glass rod, and the saline emulsion was then heated at 85° C. for 30 minutes and stroke cultures made on agar plates from the latter. 24 hours' incubation of the agar plates showed numerous colonies of B. anthracis. To the naked eye and low-power examination the colonies were quite characteristic. Examination under 1/12th inch oil immersion revealed the characteristic B. anthracis.

Convalescence has been progressive and the man has been discharged from hospital feeling very fit.

I am indebted to Temporary Lieutenant R. Francis Jones for carrying out the bacteriological work, and to Temporary Lieutenant D. J. Legge for the surgical work.

South Farnborough.

### VESICAL CALCULI IN VERY YOUNG BOYS.

BY W. E. NICKOLLS DUNN, M.B. LOND.,
SUPERINTENDENT MEDICAL OFFICER, LUXOR HOSPITAL FOR NATIVES, UPPER EGYPT.

THE following brief details of two cases of vesical calculi in boys may be worth placing under the notice of readers of THE LANCET.

In the first case the patient, a plump little Arab boy aged 2½ years, was brought to hospital in November, 1911, because he was passing blood from the penis and his urine was constantly dribbling away. The sound entered the bladder with difficulty and there was no click heard. As the father of the boy was much upset at the child's screams the sound was at

once withdrawn, and it was decided to take the patient in and examine him under chloroform. On the following day the child was duly anæsthetised. When the abdominal muscles were relaxed under the chloroform it was found that the fundus of the bladder lay just above the level of the umbilicus. The sounding of the bladder again failed to elicit any click, but the sound seemed to scrape against something as it entered the bladder. On passing a catheter only a few drops of urine escaped. An attempt was then made to distend the bladder with fluid, but without avail. The bladder was at once opened by the suprapubic route. No urine escaped, and it was found that the whole of the interior of the viscus was occupied by a smooth stone. My colleague, Dr. G. V. Worthington, grasped the bladder between his two hands and an assistant supported the stone with his finger in the rectum while it was being fractured with a mallet and chisel. Fortunately the stone was not a very hard one, but the pieces thus fractured were far too large to be withdrawn through the small wound in the bladder wall. A small lithotrite was then carefully passed around the side of the stone, between it and the bladder wall, and the female blade was slowly withdrawn until a portion of the fractured stone was grasped. An assistant then hammered the top of the supported lithotrite until the blades could be locked and screwed home. This manœuvre was continually repeated, and alternately the nozzle of an irrigator was introduced and the débris flushed out. Eventually the lower part of the bladder was by these means completely emptied. It was then thought that the rest of the stone could be pulled or pushed down from the upper portion of the bladder and more speedily dealt with. However, the stone fitted so tightly into the bladder that it was impossible to move it *en masse*, and it had to be carefully nipped off bit by bit by various kinds of forceps right up to the fundus. It took altogether two hours and a half to break up and evacuate the stone, the child being on the operating table two hours and three-quarters. For 48 hours after the operation the little patient was feverish and restless, but his subsequent recovery was uneventful. The surface of this stone was smooth and its colour brown.

The second case was that of a boy three years old who was admitted to hospital with a large stone on the same morning as the previous patient. The stone was a mulberry calculus, extremely hard and very irregular externally. The contrast between the two cases was remarkable. The boy in this case was in agony, owing to the roughness of the calculus; he neither ate nor slept, and was in consequence a living skeleton. The boy in the other case (whose bladder resembled a hard-boiled egg, the contents of the egg being the stone and the shell the bladder wall) experienced discomfort only and was quite robust in appearance. As in the former, so in this case the stone was crushed by hammering on the lithotrite, as it was too large to engage without this manœuvre, and subsequent flushing out of the débris through the suprapubic wound. The boy rapidly put on flesh and convalesced uneventfully.

In each case the wound in the bladder was left open and the edges were stitched to the abdominal wall. No tube was used and the bladder was irrigated twice daily with warm boric lotion. Urine was passed by the urethra in both cases on about the tenth day.

# Medical Societies.

## ROYAL SOCIETY OF MEDICINE.

### SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

*Exhibition of Cases.—Suppurative Parotitis after Pneumonia.*

A MEETING of this section was held on March 26th, Mr. T. H. KELLOCK, the President, being in the chair.

Dr. F. E. BATTEN and Dr. W. H. VON WYSS showed a case of the Atonic Form of Cerebral Diplegia (Foerster). The child, aged 3 years, was the first of two children, born as a breech presentation after version. He had been weak from birth, and never able to stand or walk. He could sit up and hold his head straight. There was some kyphosis in the sitting position. He had difficulty in getting up because he could not balance properly. Instead of lying down he dropped down powerless according to gravity. He could move his arms and legs freely, but all his movements showed a great deal of incoördination. There was marked hypotonia of the feet, which could be bent on to the tibiæ. There were hyperextension of the knee-joints and a certain amount of hyperflexion of the hip-joints; also some flexor and adductor spasm. When suspended by the axillæ his legs were extended and rigid. There was hypotonia of the different joints of the arms. When placed on his feet he could not stand unsupported, and when he attempted to walk his legs performed incoördinate movements. The tendon reflexes were active. The abdominal reflexes showed a marked overflow, so that the thigh muscles contracted. The plantar reflexes gave a flexor response. The muscles responded normally to galvanism and faradism. The cranial nerves showed nothing abnormal. The intelligence was not bad, but he could not talk properly, though he understood everything said to him. The Wassermann reaction both in blood and cerebro-spinal fluid was negative, and the cerebro-spinal fluid showed no chemical or cytological abnormalities.

Dr. E. G. L. GOFFE showed four cases of Ichthyosis in a family of six children. The dry, scaly condition of the skin began to show itself about two months after birth in each of the children affected. Dr. Goffe also showed two cases of ichthyosis in a family of five children.

Dr. J. L. BUNCH showed a case of Ichthyosis associated with Long-standing Superficial Ulceration of the Tongue. The patient, a boy aged 12, had had generalised ichthyosis since infancy. Chronic glossitis with superficial ulceration had been present since birth, but varied in severity at different times. His mental capacity was somewhat deficient.

Dr. EDMUND CAUTLEY showed a case of Pulmonary Regurgitation in a girl aged 15 years. History of scarlet fever at nine years, and heart affection then recognised. Last August, and again in December, some pain and swelling in the hands and ankles. On Dec. 29th she took to bed on account of shortness of breath, for which she was admitted to the Metropolitan Hospital on Jan. 8th, the pain having subsided a week previously. During her stay in hospital there was no evidence of rheumatic fever, no fever, and no change in the cardiac signs. She was rather high-coloured, big, strong, and well developed. Her periods occurred every two weeks. Enlargement of the right ventricle was shown by percussion, cardiogram, and skiagram. Over the pulmonary area a long, loud diastolic murmur, most marked over the third and fourth left interspaces near the sternum, and 2 in. to the left thereof, then rapidly lost in all directions; sometimes heard faintly along the right edge of the sternum. There was no thrill. The pulse was rather small and had no "aortic" character, and varied from 68 to 100 per minute. A blood count on Feb. 12th yielded 5,270,000 red and 3600 white cells. All the facts appeared to support the diagnosis of simple pulmonary regurgitation, except that the skiagram indicated displacement of the apex a little downwards and to the left, as in aortic regurgitation, but there was no evidence of the hypertrophy usually associated with aortic regurgitation and such a loud murmur. Dr. Cautley also showed a case of Ectromelus with Absence of Pectoral Muscles on the Right Side, and one of Deformity and Wasting of the Hands with Deformity of the Feet.

Dr. E. A. COCKAYNE showed a case of Sclerodermia with Congenital Contractures and other Defects in a male infant, aged 1 year. Premature first child of healthy parents. First seen five months ago, and found to have congenital hydrocephalus, deformity of both ears, marked congenital

contractures of the fingers and toes, and less marked contractures of both wrists, left elbow, and both knees. Contraction of the skin round the nose and mouth was also noticed. A Wassermann reaction proved negative. On Feb. 9th, 1915, the mother noticed that the skin on the outer sides of both thighs was very hard. This condition appeared suddenly and painlessly. There were large, symmetrical areas of thickened skin on the outer aspect of each thigh. The skin was not changed in colour, did not pit on pressure, and was not tender. The surface was nodular. The skin over the abdomen was affected similarly, but to a much less degree. Since it was first noticed there had been no change.

Dr. REGINALD MILLER showed a case of Inherited Syphilis with Wassermann Reactions in a boy, aged 2, well nourished. First child, no miscarriages, full term, breast fed. Father: Infected December, 1911. Treated at Lock Hospital with mercury until April, 1912; then two doses of salvarsan. Wassermann reaction not tested, as he failed to report. Reported in August, 1912, no fresh symptoms; a weak positive reaction. Received eight doses of mercury intramuscularly. In April, 1914, reaction negative. Mother: No symptoms throughout. Conception about June 24th, 1912. Child: Born March 22nd, 1913. At 5 weeks, epiphysitis of left elbow. Was treated with grey powder for seven weeks, combined with inunction (two weeks). Treatment then stopped for two months, owing to doubt in diagnosis. At 5 months he developed scaly rash on buttocks. Was given antisyphilitic treatment, including inunction, from fifth to fifteenth months; none since. Wassermann reactions of child and mother (full test): At 5 weeks, child and mother negative; at 5 months, child and mother positive; at 9 months, child and mother positive; at 11 months, child negative, mother (after salvarsan and mercury) negative; at 15 months, child and mother negative; at 23 months, child and mother negative.

Dr. E. G. FEARNSIDES showed a case of Chronic Polyarticular Arthritis commencing in a child at the age of 2 years 4 months. Until April, 1914, the patient was a healthy child. He was breast fed for 12 months, walked at 11 months, and began to talk at 13 months. In April, 1914, he became ill in himself and subject to attacks of sweating; shortly after this the small joints of his fingers swelled, his knees enlarged, and he became unable to walk. The child first came under Dr. Fearnsides's observation on August 28th, 1914. He was pale, flabby, wasted, unable to use his hands or to walk. There were considerable muscular wasting of the extremities, and great peri-articular swelling of the joints of the fingers, wrists, knees, and ankles, and apparently some enlargement of the bones. Lymphatic glands not enlarged, spleen could not be felt. He sweated freely. Tonsils were not enlarged. No abnormal signs could be discovered in the heart, lungs, or abdomen. Neither albumin nor pus in the urine. Under massage and grey powder by the mouth he had continuously improved. By November, 1914, he was again able to walk. The anæmia and the peri-articular swelling of the knees, ankles, wrists, and fingers gradually diminished. The Wassermann reaction in the serum was negative. At the present time a blood examination showed: red blood cells 5,450,000 per cubic millimetre, white blood cells 11,500 per cubic millimetre, hæmoglobin 64 per cent., colour index 0·8, with the differential count—polymorphonuclear cells 48·6 per cent., small lymphocytes 38·4 per cent., large mononuclear cells 10·4 per cent., transitional cells 1·2 per cent., eosinophiles 1·2 per cent., and mast cells 0·2 per cent. Dr. Fearnsides also showed a case of Pseudo-hypertrophic Muscular Dystrophy associated with Amentia in a boy aged 8 years. As far as could be ascertained there was no family history of myopathy. His father and mother were normal. The patient was the youngest of four children and the other three were healthy. In walking and mentally he had always been backward.

Dr. ERIC PRITCHARD showed a case of Pneumothorax. A girl, aged 12 years, was brought to hospital on March 4th, 1915, for sudden breathlessness, with some cyanosis and pain in the left side of chest. She had complained of the pain off and on for three weeks, but had been going to school until the day she came to hospital. No cough and no previous illness. On examination nothing abnormal was found in the chest; the heart was slightly dilated, but otherwise in the normal position. Patient refused admission and was taken home. She continued to complain of the pain and was faint at times. Two days later she was admitted; temperature 100° F., pulse 104, respiration 28. Physical examination as before. She continued to complain at times of pain in the lower and posterior part of the left axilla, but was otherwise comfortable. On the fourth day the pain became severe, dyspnœa marked, colour pallid, temperature 103°, respirations 64, and pulse 136. The heart's apex beat was in the fourth right space about 1 in. internal to the nipple line. The left side of the chest was immobile and distinctly full under the clavicle. The note was hyper-resonant, breath soumds scarcely audible, vocal resonance and vocal fremitus absent; coin sound obtained. In four days' time the respirations had come down to 28 and the pulse to 96, while the temperature varied from 100° to 101°; the patient was quite comfortable. The note at the left base behind became dull, otherwise there was very little change in the physical signs.

Mr. PHILIP TURNER showed a case of Hydrocephalus and Spina Bifida with Deformity of the Legs in a boy aged $2\frac{1}{2}$ years, with talipes equinovarus of right foot and bowing inwards of the right tibia. Knee-joint in normal position; patella could be felt. There was talipes equinovarus of left foot also, but left thigh was externally rotated, so that the popliteal space was directed forwards. The tibia was still further externally rotated, so that the foot, though actually in a position of marked equinovarus, was rotated outwards and the sole directed forwards. Flexion of the knee was impossible, but hyperextension could be produced to an angle of 90°. The legs were not completely paralysed, though they could be moved but little. The child seemed intelligent, and the vision was normal. There was incontinence of urine and fæces. The X rays showed that bones were all present except left patella. The long bones were narrow, unduly slender, with enlarged and indefinite epiphyses. There was some evidence of periostitis of the left femur.

Dr. J. PORTER PARKINSON read a short paper on Suppurative Parotitis following Pneumonia in a boy, aged 3 years, in whom examination of the pus showed pneumococci and a few staphylococci. Recovery was uneventful.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 16th, Dr. A. Manknell being in the chair.—Dr. F. W. Eurich gave a microscopical demonstration.—Dr. W. Mitchell read notes of a case of Urinary Incontinence in a female cured by a para-urethral injection of paraffin. The patient had sustained a rupture of the urethra during a very prolonged and difficult labour. Though the urethra had been sutured and the canal remained perfectly intact afterwards, the incontinence continued and made her life miserable. Dr. Mitchell then tried injecting paraffin with remarkable results, the patient being able to retain the urine from that moment, and no recurrence had taken place.—The case was commented on by Dr. T. J. Wood, Dr. A. Bronner, and Dr. Manknell, and Dr. Mitchell replied.—Dr. W. Wrangham read notes on two cases of Vertigo induced by intestinal parasites. Both patients were women and the symptoms were of short duration. In neither case could any cause be at first assigned for the symptoms. In one case a tapeworm was after a time discovered, and in the other several round worms. The symptoms of vertigo completely and abruptly disappeared in both cases after the worms had been evacuated. Dr. Wrangham thought that this was conclusive evidence that the vertigo was due in some way to the worms.—Dr. H. J. Campbell drew attention to the numerous drugs now on the market that are being used indiscriminately as purgatives by the public, who seem to think that any drug credited with an action on the bowels is suitable for any and every case. He reviewed shortly the action of the different purgatives and explained the principles guiding selection of a certain drug for a particular case. Broadly speaking, he said, purgatives could be divided into vegetable and mineral, the former being more generally useful in early life and the latter after middle age. The vegetable drugs acted on a normal bowel and all along the bowel There was no absorption, their action being entirely on th'e epithelial cell. The mineral drugs, on the other hand, acted on a bowel more or less overloaded with food and exerted their influence on the vessels, the action being that of bleeding the patient into his own bowel. Great care and discrimination were required in the use of purgatives, and much harm was being done by the increasing abuse of them, which is growing to such an alarming extent amongst the public.—Dr. Wood and Dr. Wrangham discussed the paper, and Dr. Campbell replied.

# Reviews and Notices of Books.

*A Surgeon in Belgium.*

By H. S. SOUTTAR, F.R.C.S. Eng. London: Edward Arnold. 1915. Pp. 217. Price 8*s.* 6*d.* net.

Mr. Souttar was until recently surgeon-in-chief to the British Field Hospital for Belgium. This hospital started work in Antwerp, and when driven out by the fall of that city moved to Furnes, a little town about 15 miles east of Dunkirk. From there, owing to the German advance, it moved to Poperinghe, about 15 miles south of Furnes in the direction of Ypres, and finally it was moved back to Furnes, where it still was in January of the current year. Anyone who wishes to read a tale of simple, unaffected heroism on the part of patients, doctors, nurses, bearers, and non-medical helpers, priests, nuns, and the incomparable lady whom Mr. Souttar calls "Madame," had better read this book at once. It is written in simple easy English, it is vivid and informing, and its pictures of the absolutely wanton and purposeless devastation wrought at Louvain, Termonde, Ypres, and other places should bring home to everyone for what a righteous cause we and our Allies are fighting and what a practically unpayable debt we owe to Belgium.

As to the purely professional work of the hospital it was very successful, and one great element of success was, as Mr. Souttar says in his chapter "Some Conclusions," that the hospital being "always close to the front, we received our cases at the earliest possible moment, and could deal with them practically first hand." Naturally nearly every wound was infected and generally soiled by "earth, manure, fragments of cloth covered with mud." In Mr. Souttar's experience, however, infection with tetanus and other virulent organisms was rare. Many of the wounds were excessively foul and these were treated by solutions of oxygen, and when protected with a thin piece of gauze, by being exposed to the open air, "the results were almost magical, for in two or three days the wounds lost their odour and began to look clean, while the patients lost all signs of the poisoning which had been so marked before. It may be partly to this that we owe the fact that we never had a case of tetanus."

An interesting phase of modern war surgery is the manner in which severe compound fractures were treated. Many of these were fractures of the femur, with a large infected wound, and several inches of the bone blown clean away. At first these cases were regarded with horror, splints proved unmanageable, the wounds had to be dressed, and any movement meant agony for the patient. So Mr. Souttar and his colleagues took to applying steel plates, and this somewhat bold stroke met with deserved reward, for, in Mr. Souttar's words, "Not only could the limb be handled now as if there were no fracture at all, to the infinite comfort of the patient, but the wounds themselves cleared up with great rapidity." So well did they do, that on the night of the bombardment of Antwerp one patient who had been operated upon for this condition only ten days previously walked downstairs with the aid of a dresser's arm.

The case narrated on p. 16 is a wonderful example of what good prompt surgery will do for a man with pluck and a sound constitution. The war has given rise to many instances of heroism and self-sacrifice, but perhaps to none finer than this of the Belgian officer who, with a hideous shell wound of the abdomen, dragged himself and a wounded companion for nearly a mile, crawling on his hands and knees. When too exhausted to drag his friend any more he left him under a hedge and managed to crawl for another half a mile, when he obtained help. At death's door he was brought to the hospital and treated, part of the operation consisting in making a short circuit. Three weeks later he was left in Ghent "to all intents perfectly well."

As journalists, too, our hearts go out to our colleague, "the editor of a well-known sporting journal in England." He was serving as a machine gunner on an armoured car and got shot through both tibiæ when standing at the back of the car. The driver not realising this started the car, whereupon the editor just had time to catch hold of one of the rear springs, and in this position, with two broken legs, he was dragged along the road for half a mile. When found he was unconscious and bruised all over. He was brought into hospital and did well.

Not only can Mr. Souttar write well on professional matters, but he has the power of making the devastation of war seem very real. For instance, of Termonde, the town which the Germans deliberately burned, he says: "No words can ever convey any idea of the utter destruction of the whole town or of the awful loneliness by which one was surrounded. One felt that one was in the presence of wickedness such as the world has rarely seen, that the powers of darkness were very near, and that behind those blackened walls there lurked evil forms. ..... One could almost hear the Devil laughing at the handiwork of his children."

We will end our notice of a first-rate book by giving an anecdote told by Mr. Souttar as a counterpoise to the heavy weight of wickedness accumulated by the Germans in their treatment of Belgium. The story is told at p. 197 and is shortly this. About half a mile out of Pervyse was a farm held by a Belgian outpost, and half a mile beyond this were two other farms held by Germans. One morning news was brought to Pervyse that some of the men at the outpost had been injured. Nothing could be done till nightfall as the road (the only one across the flooded land) was swept by German guns. Then two priests went out to the farm where they found the wounded beyond their powers of carriage. They went on to the farms in the enemy's occupation and asked for help. We give the rest of the story in Mr. Souttar's own words: "A few minutes later the astounded Belgians saw a little procession coming up the road. In front walked the two priests, and behind them came four wounded Belgians, lying on stretchers carried by German soldiers. They came right into the lines and they had a royal welcome. They all shook hands, and the little party of Germans walked back down the road amid the cheers of their opponents." Such deeds as this throw a light amid the dark places of war.

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*Surgical Materials and their Uses.*

By ALEXANDER MACLENNAN, M.B., C.M. Glasg., Visiting Surgeon, Royal Hospital for Sick Children, Glasgow, &c. With 277 diagrams and illustrations. London: Edward Arnold. 1915. Pp. 252. Price 4*s.* 6*d.* net.

THIS little book is based on lectures given to students of the Western Infirmary, Glasgow. It includes an account of the various bandages, splints, dressings, sutures, and ligatures; also the methods of antisepsis and asepsis are described; and it

closes with a description of most of the instruments employed in surgery. It contains, therefore, much that should be very useful to the student, the house surgeon, and especially to the practitioner who wishes to keep abreast of the ever-advancing tide of knowledge. The author, while describing the most recent methods, has not omitted some of the more classical ones, which are indeed still practised by some surgeons.

The book is very practical in its teaching, and evidently records the experience of a surgeon who is particularly attentive to details in his work—a matter of the greatest importance in surgery. With nearly all that he says we cordially agree, but we cannot quite concur in the statement that instruments which take to pieces should be avoided. The author tells us that such instruments are liable often to fall apart when least desired. This is to a certain extent true, but the tendency to fall apart at inopportune moments will rarely be exhibited if the locks are well made. Instruments fixed by a screw can be as efficiently sterilised by boiling as the others, but it is very difficult to remove blood or other material which makes its way into the joint.

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*Clinical Diagnosis: A Manual of Laboratory Methods.*

By JAMES CAMPBELL TODD, Ph.B., M.D., Professor of Pathology, University of Colorado. Third edition, revised and enlarged. Illustrated. London and Philadelphia: W. B. Saunders Company. 1914. Pp. 585. Price 12*s.* net.

IN the review of the second edition[1] this book was welcomed as one likely to be useful to the clinical pathologist; that this has proved to be the case would seem to be indicated by its rapid appearance in a third edition. The book has been enlarged by some hundred pages and a considerable amount of new material has been added, while the original material has been carefully revised.

The practical character of the work is insisted upon by the author, and it is based on experience gained in teaching. This experience leads the writer to the conclusion that the majority of the errors of students arise from an inability to use their apparatus properly or from failure to recognise artefacts, rather than from ignorance of typical structures when properly displayed. In this most teachers would agree. The chapter on the use of the microscope has therefore been enlarged and a set of practical exercises has been added to assist the student to meet these difficulties. As a further help to the learner use has been made of variations in size and character of type, not only for the headings of sections, but also in the text to attract attention to important points in the subjects treated. The section on the urine, always an important one and one containing methods not usual in English laboratories, has been completed by the addition of a simplified Volhard test for chlorides, the urease method for detecting urea in urine, blood, and cerebro-spinal fluid, the Rimini-Burnam test for formaldehyde, and the phenol-sulphone-phthalein test for estimating the functional activity of the kidney. The section on the cerebro-spinal fluid, which in the second edition was rather scanty, has now been rewritten and is considerably enlarged and improved. Sero-diagnostic tests were not entirely neglected in previous editions, but these tests and the methods employed in carrying them out now form a new and important chapter which has been contributed by Dr. Ross C. Whitman. The complement-fixation tests for gonorrhœa, tubercle, cancer, and syphilis are given, and the cobra venom test for syphilis and Abderhalden's protective ferment test are included. With regard to the value of Abderhalden's test criticism is not only deprecated, but somewhat fiercely resented, but we may at least express doubts as to the wisdom of including such a test in its present stage of development and with its acknowledged difficulties in a text-book avowedly intended for the practitioner and student, rather than for trained laboratory workers.

Further tests have been added in the section on the gastric contents, and several new staining methods are given. The illustrations, which are chiefly reproductions of microphotographs, have been increased in number and in some cases replaced by better plates, while the original frontispiece has been changed for a plate showing varieties of blood cells. The printing, paper, and general appearance of the book are good, and the edition is a decided improvement on the previous one.

[1] THE LANCET, 1912, vol. ii., p. 156.

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*The Alimentary Tract. A Radiographic Study.*

By ALFRED E. BARCLAY, M.A., M.D., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., Medical Officer to the X Ray and Electrical Departments, Manchester Royal Infirmary, &c. With 77 illustrations. London: Sherratt and Hughes. 1915. Pp. 195. Price 12*s.* 6*d.* net.

THE work of Dr. Barclay with the X rays in the investigation of disorders of the digestive system is so well and favourably known that it gives us no surprise to learn that the edition of his last work, "The Stomach and Œsophagus," was very quickly sold out. In the volume now before us the above work forms the basis, though it has been enlarged and altered in keeping with subsequent experience. This has gradually taught the author that in dealing with disorders of the digestive system it is no longer possible to consider one part as distinct from the others; that the various parts from the cardiac orifice to the pelvic colon are so intimately associated with each other through their nervous mechanism as practically to constitute one organ, and that referred signs and symptoms are the rule rather than the exception. Merely to demonstrate the presence of a gastric or duodenal ulcer is now no longer sufficient, and in Dr. Barclay's opinion these are most often secondary manifestations of disease elsewhere. Thus it has become necessary to extend this volume so as to take in the whole of the alimentary tract. The subject is as yet far from being worked out to finality, if, indeed, it can be said that we are not near the beginning; and this study of radiography will be no more than one of the milestones on the way, though a very important one.

All through this book we are impressed by the judgment with which observations are recorded and by the care taken in the conclusions to be drawn therefrom, the author being his own most severe critic while a generous one to the opinions of others. In dealing with the subject of the ileo-pyloric reflex he confesses himself unable to recognise Lane's kink radiographically, or to regard it as a cause of either ileal stasis or of this ileo-pyloric reflex—an interesting remark considering how much has been said on this matter by some radiologists.

It would serve no purpose to pick out any part of the book for special remark; it is one that must be studied as a whole, and if it shows

some lack of system in its arrangement, this is easily accounted for by the transitional stage through which our knowledge is passing. We advise those interested in disorders of the digestive system—and that must surely include all medical practitioners—to study this book carefully.

## JOURNALS.

*Quarterly Journal of Experimental Physiology.* Editors, E. A. SCHÄFER, W. D. HALLIBURTON, C. S. SHERRINGTON, E. H. STARLING, and A. D. WALLER. Vol. VIII., No. 4. London: Charles Griffin and Co., Limited. 1915. Pp. 303–397. Price 7*s.* 6*d.*—Researches on the Perfused Heart: Some Effects of Sodium Chloride, by W. Burridge. This is a very elaborate, well-illustrated, and illuminating contribution. It is well known that the perfusion of isotonic sodium chloride through the frog's heart leads to its arrest in diastole and loss of electrical excitability, and that isotonic sodium chloride is not an indifferent substance for muscle. The author, whose experiments were made on the frog's heart, shows that sodium chloride has an action in determining the sensitiveness of the reactions of the heart to a given concentration of calcium salts. An active displacement of calcium salts by sodium is a factor in the production of the diastolic failure which follows perfusion of isotonic sodium chloride through the frog's heart. The salts of sodium and calcium are antagonistic in regard to their mutual adsorption on the surface of certain of the heart colloids (surface effects); they are antagonistic in regard to the changes in the state of aggregation each induces in those same colloids (deep effects). The state induced by calcium is one unfavourable to its own activity in its function of tonus production; the state of aggregation induced by sodium favours these latter functions of calcium. The favouring action of sodium on these calcium functions outweighs its antagonism. Hence, if the amount of sodium chloride in a perfusing solution be increased, the effective action, in certain directions, of the calcium salts already present in that solution will also be increased, but at a distinctly later period, and *vice versâ*.—On the Relation between Calcium Salts and Alkalies of the Perfused Heart, by W. Burridge. That traces of alkali in the perfusing fluid cause arrrest of the frog's heart in the systolic phase is well known. The author finds that: 1. The increased tonus which follows the addition of traces of alkali to a solution perfusing the heart is dependent on the calcium salts in the perfusing solution. 2. It is suggested that this action of the alkali is mediated by a change in the state of aggregation of some of the heart colloids. 3. It is shown that the action of the alkali in inducing changes whereby the effective action of a given concentration of calcium in producing tonus is increased is antagonised by calcium salts. 4. It is suggested that calcium salts induce a state of aggregation in certain heart colloids which is unfavourable to their own activity in producing tonus. 5. It is shown that alkalies first prolong and then shorten the refractory period of the heart, and that a marked summation of contractions is made possible.—Experiments on the Effect of Low Temperatures on the Frog, by A. T. Cameron.—On the Movements of the Isolated Small Intestine and the Action of Various Drugs and Extracts upon Them, by Alexander Waugh Young. The gut of the cat was found most suitable. Pieces of a certain length were placed in a modified Ringer's fluid and the movements recorded. The method employed for these isolated pieces of intestine was a modification of that of Magnus. A large number of substances were studied. We only refer now to a few of them. Carbon dioxide has an inhibitory action on both the tone and movements of the intestine. If the action of $CO_2$ is prolonged the intestine is permanently injured and eventually killed. Hyoscyamine has a stimulating action; it can initiate the movements when they are absent. The pendulum movements are increased in size and made more regular, the tonus oscillations being partially or completely abolished. Stimulation is seen with 0·001 per cent. of concentration. Hyoscine has an action similar to that of hyoscyamine, but it is weaker, 0·02 per cent. being the weakest concentration having a distinct action. Both drugs inhibit the stimulation produced by pilocarpine. Cocaine has a stimulating action in strength from 0·001 per cent. to 0·01 per cent.; with higher concentration no stimulation is seen, but a marked regularising effect then appears; with 0·2 per cent. a paralysing of the intestine comes on. Inhibition of the action of pilocarpine does not occur. Choline produces a marked rise of tone in the isolated intestine; this occurs with a concentration of 1 in 50,000; with high concentration the pendulum movements are obliterated. Atropine inhibits the action. There is also mutual antagonism between the actions of choline and adrenalin. Neurine in its action resembles choline, but is more powerful; 1 in 100,000 produces an effect. Watery extract of the posterior lobe of the pituitary body has the effect of raising the tone and causing the development of large tonus oscillations. The action occurs only with high concentrations; thus two glands per 100 c.c. of Ringer's solution is the weakest extract to give definite results. Alcoholic extract has no action. Hemisine causes inhibition of the movements and lowering of the tone of the intestine; 1 in 10,000,000 produces a small but distinct effect. Extracts of spleen, thyroid and thymus, pancreas, liver, kidney, and brain give no definite results. Stomach contents inhibit the movements by their acidity alone. The contents of the small intestine have often a marked stimulating effect apart from, but to a considerable degree influenced by, their reaction. Extract of digesting gastric mucous membrane and of mucous membrane of small intestine, and also secretin, have, when neutralised, no definite action. Pancreatic secretion increases the tone. Indol inhibits the movements and lowers the tone. Bile has a similar action.—The Mode of Action of Pituitary Extract on the Mammary Gland, by Sutherland Simpson and Reuben L. Hill. The galactagogue action of the posterior lobe of the pituitary body (pituitrin) in lactating animals is now well recognised. If the action, which occurs 20 to 30 seconds after injection, is on the smooth muscle the result would be due to expulsion of the secretion already in the gland rather than to increased secretion. Two lactating bitches were used. The authors conclude that the flow of milk which follows the injection of pituitary extract is due to the action of the extract on the secretory mechanism of the gland and not on its muscular tissue, since barium chloride, which is a specific stimulant for muscle, produces no increase in milk flow. It is conceivable that the barium salt may inhibit the secretion of milk, although no such action is claimed for it; but this supposition is ruled out by the fact that the gland responds actively to pituitrin within three minutes after the injection of barium. E. A. Schäfer adds a note on the paper of Simpson and Hill. He favours the view that the complete emptying of a gland which obtains after an adequate injection can best be explained by supposing the existence of contractile tissue in the walls of the alveoli.—The Pyramidal Tract in the Striped Gopher (Spermophilus Tridecemlineatus—Mitchell), by Sutherland Simpson. We must refer the reader to the original paper, and the same must apply to two short papers on the Lipoid Content of Vascular Epithelium and of Peritoneal Epithelium by John Tait and William Campbell.

*British Dental Journal.*—In the March 15th issue of this journal there is an interesting paper by Mr. C. E. Wallis on Ancient and Modern Dentistry. He tells us that "extraction" was first recommended about the year 1300 B.C., while he refers also to the skill displayed by the Etruscans in the manufacture of gold dental bridges and similar appliances to replace lost teeth. He points out the influence of Fauchard, Heister, and Moaton on modern dentistry, and deals with the introduction of nitrous oxide. In a paper on Toxæmia of Oral Origin, Sir Rickman Godlee utters a word of warning against the reckless removal of all the teeth in cases of general disease suspected to be due to mouth infection. There is a paper by Mr. C. Every Brown on the Treatment of Sensitive Cavities.

DONATIONS AND BEQUESTS. — The late Mr. William Richmond has left his residence and grounds at Lancaster to the Royal Lancaster Infirmary and, subject to certain devises of real estate and legacies to relatives and friends, the net residue of his estate will be paid over to the trustees of the infirmary for founding, endowing, and maintaining a convalescent home to be called the Richmond Convalescent Home.—The late Mrs. Elizabeth Ellen Hopkinson, of Chesterfield, Derbyshire, has left by will £1000 to the Chesterfield and North Derbyshire Hospital and Infirmary.—The late Mrs. Elizabeth Winstanley, of Southport, has bequeathed £1000 to the Chorley Dispensary and Rawcliffe Hospital, Gillibrand-street.

# THE LANCET.

*LONDON: SATURDAY, APRIL 10, 1915.*


## The Medical Needs of the Army.

THE appeal of Sir ALFRED KEOGH, Director-General of the Army Medical Service, for medical men to meet the needs of the army[1] has not, we fear, been met with quite the alacrity which it deserved, though we have his acknowledgment that a very satisfactory number of applications have been received. That more men have not as yet applied has been due, perhaps, to the fact that the forms which are supplied from the War Office to qualified medical men wishing to obtain a medical commission in the Royal Army Medical Corps are not as informing as they might be, and certainly to the other fact that no special mention was made of the possibility of the employment of part-time service. Sir ALFRED KEOGH'S description of what he looked for was perfectly clear and simple, as far as it went. "We want," he said, "every qualified man who is physically fit and willing to serve." He mentioned the special need for general practitioners, though immediate employment could, he added, be given to all suitable men, "expert surgeons, ophthalmologists, radiographers, &c." The Director-General stated plainly that the emergency was a national one, and that while there was no desire to denude the country of civil practitioners, he hoped that every man who could arrange to have his work done at home would come [forward at once to keep up an adequate supply of medical service in the field.

We have had many communications arising directly out of Sir ALFRED KEOGH'S appeal, while we know that not only our contemporary, the *British Medical Journal*, but also many lay papers have similarly received letters from medical men desirous of helping, but uncertain how they could do so exactly. Those who were prepared to accept whole-time service were confused by the different conditions for commissions in the Royal Army Medical Corps and for Territorial commissions, and letters which have found their way into the press have not cleared up the difficulties. The three varieties of commissions available—viz., the two indicated and the R.A.M.C. Special Reserve—present differences in pay and employment which are not so easy for the layman to deal with as the military mind might conceive, but at the same time we are bound to say that we think many of the medical men who are anxious to serve would find these difficulties could be got over, if they were willing not to hedge their offers round with too close reservations. We know that many such medical men, however, must be prepared to make large sacrifices. What we would urge them to believe is that the War Office is only too anxious to obtain their assistance, and fully recognises that, in many cases, their aid must be forthcoming at both certain loss and possible risk to themselves. There has, moreover, been a widespread feeling, and one which has been openly alluded to in our columns, that in certain localities our forces were not only well supplied but over-supplied with medical officers, so that what was required was perhaps rather a re-sorting of material than the recruiting of new men. In Scotland, largely through the energy and initiative of Dr. NORMAN WALKER, the convener of the Scottish Medical Service Emergency Committee,[2] there has been a brave attempt at organising the medical profession in such a way that those who joined the army should have their interests cared for by their brethren remaining behind, a certain proportion of the pecuniary risk run by those who were with the colours thus being obviated; but hitherto in England no attempt of the kind has been made. These are the things which have possibly kept many very suitable medical men from responding immediately to Sir ALFRED KEOGH'S appeal, while the inability, apparently, to make use of the part-time services of the general practitioner has also helped to leave the army short-handed. The following is an extract of a letter which we received this week, and which we reproduce because it exactly expresses the feelings of many general practitioners:—

> "I am wondering," writes a valued correspondent, "what is likely to be in process of arrangement *apropos* of the dearth of doctors and the possibilities of having to make use of part-time service men. I cannot leave my practice, but I should be glad to be useful if possible by giving certain hours on certain days or indeed every day. In order to meet the emergencies of general practice I could arrange with a neighbouring doctor, a friend, that one of us would be always available at arranged times within some reasonable distance of the road in which we live, to carry out medical duties under orders. I have no doubt there are many situated as I am, with no experience of the military side of the R.A.M.C., who are only awaiting the chance of making themselves useful in this emergency."

There were, as our correspondent guesses, many practitioners whose thoughts were running in exactly his own grooves. Doubt as to the conditions of military service, doubt as to the real need for their help, and doubt as to the possibility of giving to the army a part of their professional time—these things accounted for many abstentions.

Such was the position when just before Easter it was decided by the British Medical Association to invite Sir ALFRED KEOGH to a conference with a special committee of the Association. The Director-General accepted the invitation, and, accompanied by Colonel A. P. BLENKINSOP, the Assistant Director-General in charge of questions of personnel, met the committee of the British Medical

[1] THE LANCET, March 13th, 1915, p. 572.

[2] THE LANCET, August 22nd, 1914, p. 530.

Association on Thursday, April 1st, when he made a statement which should, in our opinion, go far to clear up the existing difficulties. Dealing in the first place with the widespread conviction that there was an abundant surplus of medical officers in some places at home, he pointed out that such surplus was only apparent, and that there was a place for every one of the men now holding commissions to serve with units which would be sent abroad probably in a very short time. He assured the meeting that when everything that distribution could effect had been done, there would remain a serious shortage of whole-time medical officers to serve with the troops wherever they might be sent. He then made the statement, which appears on p. 775 of this issue of THE LANCET, wherein, while warmly acknowledging the assistance already received from the civil medical practitioners of the country, he accepted the fact that the help now required must be given upon the part-time principle. Mr. T. JENNER VERRALL, the Chairman of Representative Meetings of the British Medical Association, promised that the Association would do all in its power to arrange some scheme of mutual aid, while medical men have before them the excellent example of the Scottish Medical Service Emergency Committee as a guide. We feel certain that medical men who respond to Sir ALFRED KEOGH'S repeated invitation to apply to the War Office, if they desire to help the country at this juncture, will find that any doubts they may have as to the conditions of service will be removed. The conditions may call upon their patriotism, but they need not also be a puzzle to their intelligence.

## Convalescence and Sick Leave in the Army.

EARLY in the war a wave of pity led many to prepare to do their best for wounded soldiers. Throughout the kingdom in private dwellings preparations were made for the reception of small numbers of men, in pathetic ignorance of the difficulties that might be encountered if they ever arrived. Our benevolent citizens could scarcely be expected to realise that the cordiality of their move might be embarrassing or even unwelcome to the authorities. The offer of kindly treatment, of good food and surroundings, and of personal devotion seemed to mean so much when freely tendered that officialdom was blamed unjustly when the days passed without any tangible recognition. Numbers of wounded arrived in this country, were treated in hospital, and then, so far as the members of the public were aware, they were sent out on sick furlough and returned to their homes, where the conditions must frequently be far from the ideal of convalescence. In the near future the pressure on the accommodation available at the hospitals will induce a natural tendency to discharge the wounded or sick soldier on sick leave at the earliest moment possible, but it will be mainly to convalescent institutions that he will go. Private hospitality is too devoid of regulation to be useful, while the unsatisfactory nature of the food in the homes of the soldiers on sick furlough makes reception by their families inadvisable.

There is perhaps no subject upon which medical advice is more frequently sought than the question of the best method of bridging over the interval which must occur between the bed of sickness and the activity of daily life. For ordinary patients this interval is half way between the control of the physician and the resumption of whatever free will is permitted by the ordinary occupation. During the interval the control of authority is relaxed to some extent, while by degrees the convalescent man feels that, with returning strength, he is fit to run alone. Though the control is relaxed advice is desired. The medical man is asked where the time of convalescence should be spent, how the days should be occupied, what treatment, if any, should be continued, what rules of life should be followed. The answers to all these questions are dependent on the nature of the previous illness, and to a great extent they must vary with the circumstances of the patient. In general terms it may be thought to be sufficient to advise a convalescent home for those who have been inmates of hospitals. Further inquiry, however, soon shows the limits of this panacea. Many convalescent homes rigidly restrict the class of patients to be admitted; apart from questions of surgical dressings or continued surgical treatment, it is often found that the patients in convalescent homes are required to be able to perform various personal services. For those more happily circumstanced, medical men are asked to consider whether the time of convalescence is to be spent at some specially selected place, or whether it may not be more conducive to quick recovery for the patient to go to friends living in the country. Undoubtedly sympathy and kindly intercourse are factors which must often be reckoned with. They are of inestimable service when they tend to distract from the memories of the period of danger; they may be positively harmful if, through lack of tact, they encourage gloomy reminiscences.

The soldier on sick furlough occupies a position which is scarcely comparable to that of a civilian. It may be assumed that his wounds or illnesses have not been sufficiently disabling to remove all hope of future service, and it therefore is desirable, in the interest of the nation, that he should be restored to efficiency at the earliest date. On the other hand, if he is one who has returned from foreign service he has earned a furlough which he might legitimately desire to spend with his wife and family. Provided that this can be accomplished without impairing his efficiency, the dictates of humanity would offer no obstacle. Speedy restoration must, however, be the first consideration, and for this it must, we think, be

freely admitted that the life of routine in a suitable convalescent home offers the best prospects. The home would require to be under military discipline, since the cheeriness of the convalescent soldier might be misunderstood and even be troublesome in a home where civilians were received. With judicious management and understanding the convalescent soldier is a most delightful being, but he requires just a little control occasionally, and to be effective this control must be exerted by someone whose authority he respects. The difficulty of arranging for continuous supervision is perhaps the reason why so many of the offers of convalescent treatment have not been accepted by the authorities at the War Office. It might perhaps be possible to arrange for a non-commissioned officer to be responsible for due observance of regulations in small convalescent homes, but it is probable that more satisfactory results would be attained by the formation of larger homes, which should be under the management of permanent officials with military rank. On leaving such homes the men should be physically fit for service and should only be entitled to such further furlough as is necessitated by their work in the front. While under convalescent treatment in a home, or while on furlough subsequently, there can be no doubt of the importance of a sufficiently liberal diet or of strict limitation of alcohol.

## Compulsory Notification of Measles, Rubella, and Whooping-cough.

A CIRCULAR which has been issued by the Local Government Board to local authorities states that the central department is willing, on the application of any sanitary authority, to make compulsorily notifiable the first case of measles, German measles, or whooping-cough which occurs in a household in the district concerned. It becomes important, therefore, to consider the advantages which the adoption of local notification of these diseases is likely to secure.

It is not at all probable that notification can lead to much diminution in their prevalence or in their regular recurrence at epidemic periods. All three diseases are highly infectious during the days before the characteristic symptoms lead to medical aid being called, and the ability to infect will in most cases have been freely exercised before any intimation can have reached the local authority. The notification of measles has, in fact, been tried in a large number of areas in the past, and in many cases has been abandoned on the ground that no appreciable impression was made on the figures of measles prevalence, and that no obvious benefit resulted from the considerable sum spent on notification fees. Judged by the standard of prevalence notification of whooping-cough and of rubella would probably be equally disappointing. There is, however, another side to the case. Taking the 1912 return of the Registrar-General for England and Wales as an example, measles caused 12,756 deaths in the year and whooping-cough 8407 deaths, and these figures were not exceptionally large. Local health authorities and the public generally have become alive to the seriousness of the measles and whooping-cough factors in the death-rate, and besides this are realising the large amount of invalidity, particularly that due to ear mischief, which results from the complications of measles and secondary septic infections. The frequency with which tuberculosis supervenes on attacks of both diseases is also well known. In respect of fatality and of complications there is a very striking contrast between children of more well-to-do parents—who can be isolated in airy rooms, receive adequate medical and nursing aid, and be well looked after and fed during convalescence—and the children of working-class households who are usually under much less favourable conditions. Public health authorities can set themselves to reduce the handicap of the latter class. Owing to the numbers concerned routine treatment of measles in isolation hospitals is hardly practicable, though these hospitals should be available for special cases. But much can be done by systematic and frequent domiciliary visits of trained nurses, and by health visitors under medical supervision, to see that in working-class homes the best available conditions are secured during illness and convalescence, and that medical advice and other practical assistance are obtained where needed. Authorities prepared to make arrangements on these lines will find the adoption of compulsory notification of great assistance to the work.

The system in the case of measles, rubella, and whooping-cough is, however, exceptional in that no approach to completeness can be expected unless parents themselves accept the obligation to notify. As a strict matter of law, parents are already liable under the Notification Acts, in addition to the medical practitioner, for notification of the diseases to which these Acts apply, but in practice this obligation has seldom been enforced or recognised to be binding. It will be important to ascertain by experience how far notification by parents can be successfully pressed in regard to the diseases here in question, as it may well be the case that the children needing the greatest amount of attention will be found in households where notification requirements have been neglected.

BY the will of the late Mr. George Stowell, of Great Torrington, the testator left, subject to the life interest of his wife, £1000 to the trustees of Epsom College upon trust, to pay the income for one year to a boy, who shall have been educated at the school for five years, to enable him to further his training.

# Annotations.

"Ne quid nimis."

## THE ALCOHOL QUESTION IN RELATION TO THE ALCOHOLIC STRENGTH OF BEVERAGES.

THERE appears to be a considerable amount of misapprehension in the public mind as to the alcohol value respectively of spirits, wines, and other beverages. Strictly speaking, a total prohibition order would exclude all fermented beverages, including ginger beer (made with yeast, sugar, and ginger), which may reach an absolute alcohol strength of 2 or 3 per cent. by volume. No beverage, of course, which has been fermented can be free from alcohol. On the other hand, there are a number of effervescing beverages —e.g., ginger ale, lemonade, "tonic" water—which are not fermented at all, they are simply solutions or infusions of the various ingredients aerated with carbonic acid gas under a small pressure. Broadly speaking, alcoholic beverages can be divided into the following groups in the order of their alcoholic strength: Spirits—whisky, gin, brandy, and rum containing about 50 per cent. of alcohol by volume; fortified wines—port, sherry, and madeira containing about 23 per cent. of alcohol by volume; unfortified or the so-called natural wines—some pale sherry, claret, moselle, hock, burgundy, and sauterne containing approximately 12 to 13 per cent. of alcohol by volume. In this group may be included champagne and saumur and sparkling hock, although these may be slightly liqueured. We find, however, that they seldom contain more than 14 per cent. of alcohol by volume. The last group comprises cider, perry, and beer. The alcoholic strength of cider is about that of light beers—viz., approximately 6 per cent. by volume of alcohol. There are, however, two classes of beer, the heavy or high gravity beers and the low gravity or light beers, the former containing about 2 per cent. by volume more of alcohol. The foregoing figures have been obtained in our own laboratory and have been often tested. It is important to remember that beers are sharply distinguished from all other alcoholic liquors inasmuch as they contain a decided amount of nourishing material in the shape of carbohydrates and proteins derived from the malt. The absorption of alcohol is retarded in the presence of food substances and also by free dilution with water. Recent events appear to show that owing to the extra taxation of beer there has been a decided decrease in its consumption and a corresponding increase in the consumption of spirits and especially of whisky. There are reasons for believing that the very cheapest and immature whiskies have thus replaced the much more wholesome malt liquor. If that is the case the extra taxation of beer with the object of gaining increased revenue was unfortunate. The brewing industry, especially if it be confined to brewing light beers, is much less likely to do harm than the distilling industry, which is bound by statute to keep up its product to a very high alcoholic strength. Of wines, a pure natural claret is undoubtedly the most wholesome, and the best non-alcoholic beverage is "dry" ginger ale.

## ANGELO CELLI.

THE Roman Società per gli Studi della Malaria (writes an Italian correspondent) has undertaken to erect a monument to the memory of the late professor of State hygiene, Dr. Angelo Celli, to attest its appreciation of his work as the inspiring and guiding spirit of the society in question. The site of the memorial will be a commanding spot in the Agro Romano, to the rehabilitation of which, in a sanitary as well as an agricultural sense, Dr. Celli contributed so assiduously and so well.

## GENITAL INFECTION IN LEPROSY.

THERE is a widespread belief among some native races, the Chinese and Japanese, for instance, that impure sexual contact plays a part in the spread of leprosy. Our contemporary, the *American Journal of Tropical Diseases and Preventive Medicine*, has, in an editorial article in a recent number, called attention to this subject. At the present time our knowledge of the ways by which the disease is propagated is defective, and as a consequence it is possible that our efforts to prevent it may not be altogether carried out in the proper directions. The presence in lepers of nasal discharges containing the bacillus lepræ has been regarded as probably concerned in the diffusion of the malady. A few writers on leprosy have at times expressed the opinion that unclean sexual intercourse may be responsible in some cases for the development of the infection; but it cannot be said that hitherto any very convincing facts have been reported to support this view. The article to which we have referred above brings forward some evidence bearing upon the point, and quotes the statements of Dr. E. Jeanselme in the *Bulletin de la Société de Médecine Exotique*. Sometimes, it is alleged, lepromata form in or near the genital organs, and in certain instances pus containing "myriads" of B. lepræ can be squeezed from the urinary meatus. Dr. Jeanselme describes the case of a South American leper living in France upon whose glans penis lepromata were present encroaching upon the meatus, and who had suffered for some time from difficulty in passing his urine. From the urethral discharge of this patient Hansen's bacilli were obtained. In this instance the bacilliferous urethritis was of the gravest importance, since the man was still at the height of his sexual activity. It is suggested that leprous urethritis is not so rare as is commonly supposed, and careful examination would probably often reveal its existence in unsuspected cases. In the later stages of leprosy the sexual powers decline, but they are active in the earlier period of the disease. Systematic examination is proposed in all cases, and where urethral discharge is present it is recommended that the patient should be strictly isolated to prevent any further mischief to others.

## STREET ACCIDENTS CAUSED BY VEHICLES.

A RECENT return showing the number of accidents resulting in death or personal injury known by the police to have been caused by vehicles in streets, roads, or public places during 1914 comprises a period during which in London and in many sea-coast towns street lighting at night has been diminished or forbidden. To some extent this incident of war may account for a rather marked increase in the number of accidents which took place during last year as compared with 1913, and it will be of some interest to observe, when the statistics of 1915 are published, whether an increase in the number of darkened areas, and in the strictness of the regulations as to this measure of precaution, as well as with regard to

lights on vehicles, can be said to have had any marked effect in augmenting the danger to pedestrians and to others inseparable from motor-driven and other vehicles. Horse-drawn vehicles in any case grow fewer and so do the accidents which they cause. The deaths officially ascribed to them in England and Wales during 1914 numbered 520, as against 554 in 1913; in Scotland 64, as against 86; and in Ireland 49, as against 84. Probably the demand for horses for war purposes, as well as the increase of motor traffic, must be taken into account in connexion with this diminution, but we must also remember, when considering the number of accidents in which motor vehicles have played a part, that in the last months of 1914 an enormous number of our private and other vehicles were already at work on the continent. In England and Wales the number of accidents due to motor vehicles and reported to the police were, in 1914: fatal 1334, non-fatal 29,891; in 1913: fatal 1189, non-fatal 26,135. The corresponding figures for Scotland are: 1914: fatal 142, non-fatal 2308; 1913: fatal 133, non-fatal 2064; and for Ireland: 1914: fatal 53, non-fatal 873; 1913: fatal 53; non-fatal 728. The total increase of accidents due to vehicles of all kinds amounts to 63 so far as fatal accidents are concerned, and to 3994 with regard to non-fatal accidents. It may be suggested that of these the numbers which relate to deaths are likely to be more uniformly accurate than those tabulated with regard to non-fatal accident. Even a severe accident not causing death may never come within the cognisance of the police, and the proportion of accidents thus escaping record must vary according to local circumstances. Be this as it may, the latest police statistics of accidents show an increase which may or may not continue in future years, and, as has been suggested, the war has afforded at least one cause for an upward movement, while another would be an increase, also due to war, in the number of inexperienced drivers. Both these circumstances will have existed in even greater degree during the past three months than during the closing quarter of 1914; but, on the other hand, we must not forget the fact, referred to above, that a very large number of vehicles which otherwise would be circulating upon the highways of the United Kingdom are now abroad. Upon the whole, therefore, it may be wiser to wait until peace has restored normal conditions and not to draw inferences rashly from the figures above quoted, but merely to note that there is an increase in the number of accidents. This must be to some extent due to the popularity and usefulness of the motor-propelled vehicle having increased the number of vehicles on our roads, and has not been necessarily caused by any general negligence on the part of drivers or by any dangerous qualities inherent in this form of locomotion.

## THE OPEN TREATMENT OF WOUNDS WITH IODINE.

Dr. Marco Pezzolo has been following up the suggestions made by Professor Alcock, of Edinburgh, as to the advantages obtained by dispensing with the use of antiseptic dressings for wounds. He gives his experiences in a recent issue of *Il Policlinico* and they seem to endorse Professor Alcock's views in that his results were entirely favourable. He makes use of a 4 per cent. solution of iodine in commercial methylic alcohol which should contain from 1·5 to 2 per cent. of acetone, and should be freshly prepared, since stale preparations give rise to irritating fumes. In this detail he differs somewhat from Professor Alcock, who uses a much weaker solution, 2 parts of tincture of iodine B.P. to 98 parts of methylic alcohol, and who attributes the absence of irritating fumes to the use of methylic instead of ethylic alcohol. Dr. Pezzolo made a bioscopic examination of skin treated by painting it three times with this solution at half-hour intervals, and demonstrated the penetration of iodine by means of the reaction between it and a weak solution of nitrite of potash acidulated with acetic acid. He then adopted this method in treating his cases of operation. At first he painted the wound daily after the operation up to the seventh day, but afterwards he limited this treatment to the fourth or even the third day, according to the extent of operative interference, the wound being often hermetically closed by that time. He also at first covered the wound with a dry sterile pad, but latterly discontinued this, the patients merely wearing the sterilised hospital garments. He was at particular pains to ensure complete hæmostasis and perfect adaptation in suturing, and recommends this method in all cases where there is no need to use drainage-tubes or bandages for supports.

## TICK PARALYSIS.

SINCE the first proof was afforded that disease may be conveyed by the bite of insects and other parasites, quite a considerable number of affections have been traced to this source of inoculation, and others are constantly added to the list. One of the most recent is the form of paralysis associated with the bite of ticks, which has been observed in British Columbia and in Wyoming and Montana, as well as possibly in Australia. The subjects of the disease are usually children, and the symptoms are flaccid paralysis of the legs with some rise of temperature and considerable quickening of the pulse. If the tick is found and removed promptly these symptoms quickly subside and the child gets well again within 12 or 24 hours without any residual ill-effects; but if this treatment is omitted the paralysis may spread to the arms, stupor may supervene, and the child may die with general paralysis in a condition of coma. More rarely a somewhat similar but milder condition may be produced in adults, the symptoms being pain, vertigo, and incoördination, accompanied by an erythematous rash in one instance. It would seem that more than one kind of tick may be responsible for the conveyance of the disease: thus both the genus Ixodes and the genus Dermacentor have been incriminated. A form of paralysis in the sheep of British Columbia is associated with the presence of tick, and Hadwen was successful in producing the condition experimentally by causing a tick to feed on a lamb, while later, in conjunction with Nuttall, he induced the same symptoms in a dog. Todd,[1] who has recently given an account of the affection, made a series of experiments on monkeys, lambs, puppies, and a guinea-pig, but failed to obtain any definite positive results, nor did an extract of ticks produce paralysis when injected into rats. The disease clearly needs further elucidation, and the existing difficulties will doubtless be cleared up now that attention has been fairly called to the existence of the affection. It appears to be an intoxication

[1] Reprint from the Journal of Parasitology, 1914, i., 55.

rather than an infection, if one can judge from the rapid disappearance of symptoms when the tick is entirely removed, whereas if only the head of the parasite is left in the skin the paralysis may persist and even progress. If the possibility of the presence of a tick be not borne in mind the condition might be mistaken for simple convulsions or for infantile paralysis.

## THE EFFECTIVENESS OF TOOTH-WASHES.

THERE are few persons now who have not the conviction that the scientific cleansing of the teeth and gums is very valuable, and the business in antiseptic dentifrices is obviously increasing, judging from the numerous public advertisements which appear in the daily press setting forth the merits of a great number of these preparations. Generally speaking, they are so composed as to render them well adapted for the purpose, and we have submitted a number of them to analytical examination. The choice of antiseptic is commonly confined to carbolic acid, thymol, peppermint, boric acid, benzoic acid, eucalyptus and other essential oils, distributed in vehicles containing as an agent of attrition non-gritty chalk and as an alkaline medium soap. Experiments are usually quoted as to the actual germicidal value of these preparations *in vitro*, but of course it would be more satisfactory to have evidence of their real effect in the mouth where very different conditions must as a matter of fact exist. The use of a tooth-wash does not approach the conditions of a laboratory test, though there can be little doubt that a good deal of germicidal work in the mouth is done by the vigorous application of the toothbrush, and it may be pointed out that the tongue may well be included in the process. To be effective, however, the action of all antiseptics takes time, according to the vitality of the organisms they encounter, and usually the tooth-brushing process does not occupy many seconds. This question of time-exposure is important, but it is very generally overlooked, and consequently the antiseptic treatment of the teeth falls short of that effectiveness which is shown to be the case in laboratory experiments. The tooth-washing process should be more prolonged and the antiseptic wash allowed to remain in contact with the teeth and gums for some minutes instead of seconds before finally washing the mouth clear of antiseptic with plain water.

## CONGENITAL DIAPHRAGM OF THE LARYNX.

ACCORDING to Sir StClair Thomson there are but 20 cases of congenital diaphragm of the larynx on record. In the *Saint Paul Medical Journal* for February Dr. G. B. New has reported the following case from the Mayo Clinic, Rochester, Minn. A well-developed and healthy man, aged 27 years, had been hoarse since birth with no apparent change of voice. On exertion, such as running up stairs, he had slight difficulty in breathing. Laryngeal examination showed a thin membrane extending between the margins of the true vocal cords for two-thirds of their extent anteriorly with a concave margin towards the lumen of the glottis. The membrane was pale grey, gradually fading into the margins of the cords, which were rounded and slightly reddened. It appeared thinnest in the median line and at its free margin, and did not show any scarring. The larynx was otherwise normal. During phonation the membrane almost disappeared, but enough remained to prevent approximation of the cords. The Wassermann reaction was negative. Congenital diaphragm of the larynx was diagnosed because of the history of hoarseness since birth, the absence of any illness which would account for such a condition, the appearance of the diaphragm, and the otherwise normal larynx. With a laryngeal knife the membrane was split down the centre from the free margin to the anterior commissure. As the knife approached the anterior commissure there was increased resistance on account of the greater thickness of the membrane. Although measures were taken to prevent it, adhesion of the cords at their anterior part occurred. After the reaction from the operation the voice was slightly improved and breathing easier. As to the origin of such membranes, Ganghofner has shown that the larynx is developed from two symmetrically placed ridges which bound a small fissure. At a certain stage of development these ridges lie close to each other and are attached by epithelial adhesions. The membrane is due to the persistence of these adhesions. Heredity seems to play a part, though in the present case there was no family history of such a condition. A case has been recorded in which the father and sister of a patient had similar formations, and a case in which the mother of a patient had congenital adhesions of the cords at the anterior commissure. Other congenital deformities—shortening of the frænum linguæ and coloboma of the upper lid—have been found associated with congenital laryngeal diaphragm. Microscopic sections have shown the presence of mucous glands and muscle fibres in the diaphragm. Flat epithelial cells were present on the upper surface and cylindrical epithelial cells on the under surface similar to those of the cords. A congenital diaphragm of the larynx is usually in the anterior part, but two cases have been reported in which it was in the posterior part. The diaphragm varies in size from a simple rounding of the angle of the anterior commissure to that present in the case described above. Rounding of the anterior commissure is not an infrequent finding in the examination of the larynx. Treatment, as a rule, has been unsatisfactory, because the raw surfaces of the anterior commissure unite again. Improvement of the voice usually is not marked, although the breathing is easier.

## PITUITARY STANDARDISATION.

PHYSIOLOGICAL standardisation has for many years been a subject of controversy, and many efforts were made to induce the General Medical Council to adopt this method in the current British Pharmacopœia. It has been urged that this test affords the only certain method of obtaining uniformity of strength for various galenical preparations. Since the General Medical Council has not thought fit to introduce this innovation, it is not necessary to recount the various arguments adduced in its favour. It must be admitted that the latest contribution[1] is certainly not encouraging. It recounts experiments conducted with a view of comparing the physiological activity of some commercial pituitary preparations, and after a careful description of a large series of experiments the writer (George B. Roth) concludes that in a general way it may be said that the claims of the

[1] Hygienic Laboratory Bulletin, No. 100, November, 1914, Washington.

manufacturers are misleading, since the statement "physiologically standardised" means practically nothing. The tests employed were those known as the isolated-uterus method, and by these tests it was found that of two preparations claiming to be of the same strength one was 7·5 times stronger than the other. Altogether 11 different samples were collected, representing the product from six different manufacturers. They were all bought in the open market in sealed packages, and were kept in their original package in a cool dark place until used. The examination of these samples by the blood-pressure method and the intact-uterus and isolated-uterus methods showed them to possess a wide range of physiological activity, the ratio of variability between the strongest and weakest by the blood-pressure method being 15 to 1, by the intact-uterus method about 10 to 1, and by the isolated-uterus method about 7 to 1. The article concludes that the need for uniformity in the strength of commercial pituitary preparations has been made apparent. Incidentally it may be remarked that these experiments have also demonstrated the unreliability of some of the commercial claims connected with "physiological standardisation" and the urgent need of some central bureau of control before any reliance can be placed on the label.

## AUTOPLASTIC OVARIAN TRANSPLANTATION.

THE number of cases of ovarian transplantation recorded is so limited that every case is of value. In the *Medical Journal of Australia* Dr. J. H. Nattras has reported the following case. A married woman, aged 17 years, was admitted for her confinement to the Women's Hospital, Melbourne, on March 5th, 1911. She had suffered from hip and spinal disease for ten years and had not walked, except with crutches, since the age of 7 years. Menstruation occurred regularly until May 15th, 1910, and then ceased. The right lower extremity was 12 inches shorter than the left and much atrophied. The hip-joint was ankylosed with the thigh flexed and fixed in a position over the middle line. There was a tuberculous sinus over the right trochanter, and scars from healed sinuses were present over the lower lumbar vertebræ and right buttock. The appearance of the abdomen was consistent with pregnancy at term. The fœtus was alive and apparently below the average size, but there was not the slightest engagement of the head in the pelvic brim. Examination per vaginam showed a generally contracted pelvis, especially in the true conjugate diameter, which was 3 inches, and the transverse diameter of the outlet, which barely admitted three fingers. As natural delivery was impossible it was decided to perform Cæsarean section and, in consequence of the tuberculous condition of the patient and her deformities, to sterilise her by transplanting the ovaries. As 294 days had passed since the commencement of the last menstruation the operation was performed without delay. On March 7th, 1911, a full-time female child, weighing 6 lb., was removed. The ovaries were excised and immediately placed in normal saline solution at 98·4° F. Each ovary was incompletely divided longitudinally through its hilum. As much ovarian stroma was cut away as possible with curved scissors, because a transplanted ovary degenerates to an extent directly proportionate to its thickness and density. By sacrificing the fibrous stroma the ovum-bearing part is more easily nourished. Each ovary being thus prepared under saline solution, the sheath was separated from the anterior surface of the left rectus muscle until the outer border of the muscle was free. With catgut sutures the surface of the incompletely divided left ovary was fixed on the muscle border so as to form a sandwich with it. The cut surface of the right ovary was fixed with catgut to the right external oblique muscle about 2 inches from the middle line. Recovery was uninterrupted. The patient suckled the baby for nearly five months, until the first week of August. On Sept. 24th menstruation recommenced and was fairly regular. Sometimes the patient knew she was about to menstruate by tenderness in one of the grafted ovaries, usually in the subcutaneous one. She thought that the ovaries swelled on these occasions. Three and a half years after the operation the subcutaneous graft could be easily felt, and a sickening sensation was produced by palpation. The left ovary, which was placed more deeply, could not be palpated definitely, but a spot could be found pressure on which caused a sickening sensation. This sensation and occasional pain on menstruation seemed to indicate the development of nerves in the graft similar to the development of blood-vessels, which is known to occur. The patient looked well, the uterus was of normal size, and there were no symptoms of the menopause. As an example of successful ovarian transplantation the case is of great interest, but it may be suggested, as is done by Mr. A. N. McArthur in a subsequent issue of the same journal, that sterilisation could have been effected by the much simpler operation of resecting the tubes.

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Dr. Henry Lewis Jones, consulting medical officer to the electrical department at St. Bartholomew's Hospital, died at his residence, 143, Harley-street, W., on Easter Day. Dr. Lewis Jones was the best known authority in this country on the electrical treatment of disease; he was a pioneer, and remained in the van. He had been in ill-health for some considerable time, and the recent death of his only son while on active service no doubt hastened his death at the age of 58 years.

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THE King has given to Dr. David James Galloway His Majesty's Royal licence and authority to wear the Insignia of the First Class of the Order of the Crown of Johore, conferred upon him by His Highness the Sultan of Johore in recognition of valuable services rendered as physician extraordinary to His Highness.

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METROPOLITAN ASYLUMS BOARD.—A three months' course of lectures and demonstrations in hospital administration for the Diploma in Public Health will be given as follows: (1) At the North-Western Hospital, Lawn-road, Hampstead, N.W., by Dr. J. MacCombie, medical superintendent, on Mondays and Thursdays, at 5 P.M., beginning Monday, April 12th; and (2) at the Grove Hospital, Tooting-grove, Tooting Graveney, S.W., by Dr. J. E. Beggs, D.P.H., medical superintendent, on Mondays and Thursdays, at 5 P.M., beginning Monday, April 12th. The fee for the course is £3 3s. Cheques should be made payable to the "Metropolitan Asylums Board." Medical men desiring to attend a course of instruction are required, before attending at the hospital, to pay the above-mentioned fee to Mr. T. Duncombe Mann, clerk to the Metropolitan Asylums Board, Embankment, E.C., giving their full name and address.

# THE MANUFACTURE OF SALVARSAN PRODUCTS IN ENGLAND AND FRANCE.

WE have received the following communication from the Secretary of the National Medical Research Committee (National Health Insurance Act):—

In consequence of the outbreak of war the Board of Trade suspended the Patent and Trade Mark of the drugs Salvarsan and Neo-Salvarsan, and, as the medical profession will be generally aware, granted a licence to Messrs. Burroughs, Wellcome, and Company for the manufacture in this country of these preparations, which they sell under the names of Kharsivan and Neo-Kharsivan, and to the Société Anonyme des Etablissements Poulenc Frères, of Paris, for the sale in Great Britain (through the agency of Messrs. May and Baker, Limited) of the same products under the names of Arsenobenzol-Billon and Nov-Arsenobenzol-Billon.

It must be understood that, although the manufacturers have in both instances adopted distinguishing trade names for their preparations, the latter are not merely similar substitutes for, but are chemically identical with Salvarsan and Neo-Salvarsan, differing in no known respect from Ehrlich's original products, either in their final constitution or in the details of their preparation. The proof of such absolute identity is, however, in the case of these substances a matter not only of great importance but of unusual difficulty. Salvarsan is a highly reduced substance. If the reduction, which constitutes one stage of its manufacture, is carried out with insufficient vigour, or if the product is later exposed to the danger of oxidation by contact with air, it is readily contaminated with a much more toxic oxidation product. The water-soluble derivative "Neo-Salvarsan" is even more liable to this defect. As a matter of fact it is impossible, by the most careful procedure, altogether to exclude the presence of the more toxic oxide, and the best specimens, from any source, contain it in the proportion of about 0·5 per cent. The extent of this known contamination can be chemically determined with some degree of accuracy, and it is an obligation resting upon the manufacturer to see that no batch of his product contains it in an unsafe proportion. According to Ehrlich the proportion varies from 0·5 to 0·8 per cent. in good specimens.

If the presence of an excess of this easily recognisable and determinable oxide were the only source of difficulty or danger, a chemical standard of purity, on similar lines to many in the Pharmacopœia, could easily have been defined and enforced for these preparations. Unfortunately there are indications that other toxic products, of unknown constitution, may arise through uncontrollable accidents of preparation. The presence of these is only indicated by the fact that the toxicity of the Salvarsan products cannot be accounted for by the percentage of the known toxic oxide which they contain. While, therefore, the determination of the latter is a necessary safeguard, it can be regarded as a preliminary precaution only, and the final appeal, in the present state of knowledge, must be to animal experiment, the result of which gives evidence of the total toxicity from whatever source it comes.

The Board of Trade licence in both the above cases was therefore granted subject to the condition that all samples of these drugs sold in this country should be submitted to biological tests by an authority approved by the Board of Trade.

In the special emergency created by the war the Medical Research Committee, at the request of the Board of Trade, accepted for the time being the responsibility of directing the biological tests of the Salvarsan and Neo-Salvarsan produced by these English and French firms.

Examples of these products, therefore, cannot be properly sold in this country by Messrs. Burroughs, Wellcome, and Company or by Messrs. May and Baker unless and until samples of the batch of product from which they are taken have been tested under the direction of the Committee and a certificate has been issued by the Secretary of the Committee approving that particular batch for sale.

In view of the public interest which must attend the establishment of so intricate a manufacturing process in England at short notice, and in view also of the great importance to the medical profession and the public of the degree to which success has been attained in the manufacture, it is thought desirable that a general statement should be made of the policy which the Medical Research Committee have pursued in their performance of the public duty which has fallen to them.

When the work of biologically testing samples of these arsenical compounds from other than German sources was undertaken, there was no time for any elaborate preliminary investigation of new methods of biological assay. The public need for an immediate and abundant supply was urgent, and the existing stocks of German production were found to be too low to allow delay.

The Committee entrusted the details of the work to most competent pharmacological workers, who took as a basis for the biological control, supplementing the chemical tests of the manufacturer, the methods and standards which had previously been found adequate in Ehrlich's Institute. It was decided, accordingly, that specimens should be passed as satisfactory, under the official certificate of the Committee, which were not more toxic to mice than the average sample of German manufacture. This decision has already involved the rejection of some samples which exhibited no greater toxicity than some of those previously issued in this country, with Ehrlich's authority, and used therapeutically without adverse result.

In addition, however, to this application in all cases of the official German test, every sample has been further tested by the intravenous injection into a rabbit of a large dose only slightly less than that which may be expected, according to Ehrlich's publications, to be lethal for the animal. The object of this test was to guard against the presence of any immediate toxic constituent which might escape detection when doses were given hypodermically to mice. If, in the performance of this test, any difference had been found to exist as between the English or French products on the one hand, and the original German products on the other, the sample in question would not have been passed for certification and for sale to the public.

It should also be added that in addition to these biological tests which have been imposed as an invariable routine, the Committee have caused experimental assurance to be obtained that both the French and English preparations are equivalent to the German in therapeutic effect. This has been done by a comparison of their relative potencies in curing experimental trypanosomiasis in mice and experimental spirochæte infections in rabbits.

In the opinion of the Medical Research Committee, the experimental work which has been done under their direction has already shown that the problem of the successful manufacture of the Salvarsan compounds in England and France has been solved. By the communication from time to time to the manufacturers of certain findings of the scientific workers, entrusted with the problem by the Committee, assistance has been given wherever possible towards the establishment of fully satisfactory technical manufacturing methods, and the Committee are confident that, so far as the strictest laboratory controls can ensure it, the profession and the public are now receiving from English and French sources compounds fully up to the standard of the best German samples previously sold. It is to be hoped that very soon the quantity of the products so supplied will be as sufficient as their quality.

## AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

### *The War.*

THE interest in the European War is still the prominent feature of all public discussion and activity. The Federal Government proposes to place no actual limit on the number of men sent abroad, and recruiting is proceeding daily at all important centres. No difficulty has been found in providing medical officers, and volunteers are still in considerable excess of the demand. The physique of the men selected is still kept to a high standard. Much public interest has been shown in the provision of motor ambulances for the front. The Australian Women's National League in Victoria has supplied four from a purely women's subscription. The medical profession throughout Australia have equipped two from a general subscription, and the Victorian Bar has offered one to the Defence Department. Similar movements are on foot throughout all the States, and the various Red Cross and relief funds are being added to daily.

### *Soldiers and Alcohol.*

Public attention has been attracted to the indulgence in alcohol by soldiers, and various suggestions are being made. In Victoria deputations of temperance and religious organisations waited on the Premier and asked for earlier closing of hotels. Sir A. Peacock deprecated the idea that as a body the men were over-indulgent. It might be true that some individuals drank too much, but this was not characteristic of the Australian troops. He promised to look into the Licensing Act and do what was reasonable to mitigate drinking to excess by the men, and at the same time expressed the view that the abolition of wet canteens by the defence authorities did not make for sobriety among the troops.

### *Personal War Items.*

Surgeon-General W. D. C. Williams, the Director-General of Medical Service to the Commonwealth military forces, has been appointed honorary Surgeon-General of the British Army.—Mr. F. D. Bird, lecturer in surgery in Melbourne University, who went as a volunteer with the Expeditionary Force, has been appointed consulting surgeon to the Australian forces in Egypt.—Mr. R. Hamilton Russell, who was attached for some time to the Australian Voluntary Hospital at Wimereux, has returned to Melbourne and resumed practice.

## PARIS.

(FROM OUR OWN CORRESPONDENT.)

### *An Easy Mode of Sterilising Material for Dressings.*

Professor Weil, of Lyons, has recommended an excellent method of sterilising linen by ironing. From his experiments on baby-linen Professor Weil finds that the temperature at which laundresses used the heated iron is about 150° C. It will cause hydroquinone to melt. But linen is not sterilised every time it is ironed unless it has been previously dampened throughout. The laundress sprinkles the linen before ironing, thus unconsciously fulfilling the conditions desirable for a satisfactory sterilisation. A fire, a flat-iron, some linen, these are all that is necessary to provide a supply of sterilised dressings, and they can be obtained almost anywhere; even in the country one can find plenty of used linen which, in consequence of its greater suppleness than when new, is admirably adapted to make dressings. It is cut into pieces of the required size and folded into compresses of suitable shape. Every house has a flat-iron, and a fire can always be got. Some flat surface is necessary to serve as an ironing board, and it is covered with some thickness of stuff in cushion fashion so as to make the ironing easier. This is covered with linen, which is carefully ironed first, and is left in place forming a sterile surface upon which the dressings can be ironed. It is necessary before sterilising each object to pass the hot iron afresh over the linen covering of the ironing board. The iron may be considered as sufficiently hot when, on bringing it within a few centimetres of the cheek, a heat too powerful to be borne is felt. In ironing it is necessary to touch the linen, wherefore aseptic hands are required, and in addition it is a good plan to paint the tips of the fingers with tincture of iodine. The blue mark caused on the linen thereby is of no consequence in this case. The *sine qud non* is that the linen should be carefully moistened before ironing—indeed, the principle of moist sterilisation, as in the autoclave, is thus realised. Finally the linen is ironed surface by surface and fold by fold. It is important never to touch the linen save at the corners and always to run the iron over the place that has been touched. If the material is not to be used immediately it should be covered as soon as possible away from the dust in the air. A soldier's mess-tin makes a very good dressing receptable; it is easily sterilised by boiling or heating.

### *A Mechanotherapy Apparatus.*

M. Privat recently showed at the Academy of Medicine a very simple method of constructing a mechanotherapy apparatus. Every medical man knows how to construct a continuous traction apparatus with a weight, a piece of cord, and a pulley. If the point of attachment of this pulley is made mobile by suspending it by a cord from the ceiling, the weight in balancing produces rhythmic tractions passing alternately from maximum to minimum. This apparatus can further be graduated according to the degree of sensibility of the joint. With two pulleys of different diameters it is possible to make five different dispositions, each giving (for the same weight) a different result, which allows diminution or augmentation of the interval between maximal and minimal tractions.

# Public Health.

## REPORT FOR 1913 OF THE MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER OF THE ADMINISTRATIVE COUNTY OF LONDON.[1]

### PART II.—EDUCATION.

IN an introductory note to this part of the present report Dr. W. H. Hamer gives an account of the further development of school work in the direction foreshadowed in his previous report. Among measures of special importance he refers to the reorganisation of the Council's arrangements for the medical inspection and treatment of school children, the promotion of efforts for the control of infection in schools, and the maintenance of schemes for encouraging personal hygiene and cleanliness.

*Medical Inspection and Treatment.*

In making provision for the efficient inspection and treatment of school children the numerical strength of the medical inspecting staff must obviously be adequate. The question of the suitability of the candidate for appointment will also require careful consideration. Respecting the latter point Dr. Hamer insists that for the efficient discharge of his duty the school doctor should have received special training in public health. It is imperative, for example, that he should be expert in the detection of conditions inimical to health and in the investigation of infectious outbreaks in the schools under his charge, inasmuch as prompt and decisive action is often required at the school itself in order, *inter alia*, to avoid unnecessary interference with educational work. Moreover, this officer should be thoroughly conversant with the physical and mental development of normal and abnormal children, so that he may be competent to advise in cases of backwardness or retarded development or of other conditions detrimental to educational progress. When medical inspection was first undertaken in London the term of appointment of officers seldom exceeded three years. Consequently the supervision and training of the newly appointed doctors entailed a severe burden on the supervising staff, and frequent changes proved so prejudicial that steps have recently been taken to secure greater permanency and continuity in the work. The inspecting medical staff has therefore been reconstituted. London has been divided into five districts instead of four as formerly, the staff of each district being controlled by a divisional medical officer with the aid of additional permanent and temporary medical assistants. In order to comply with the suggestions of the Board of Education it has been arranged that the permanent medical assistants shall share in the general work of the department, including the inspection and "following up" of defective children, the visitation of treatment centres, and the regulation of open-air schools. General public health supervision is now added to the duties of these officers, including the investigation of infectious disease and the control of tuberculosis among school children.

*Centres for Medical Treatment.*

During the year under review there has been a large increase in the facilities afforded by the Council for institutional treatment. At the end of the year 34 centres existed, in which 84,350 children were treated, or more than 11,000 in excess of the number treated in the previous year. The reorganisation of the medical staff already referred to has led to extension of the school doctors' work by reinspection in all cases where hospital or other medical treatment has been recommended. During the year the number of such re-inspections is estimated at 150,000. Dr. Hamer testifies to the satisfactory character of the work now in progress, a result that could not have been achieved by a staff previously unskilled in the details of school inspection.

*Government Grants.*

In the course of 1913 new regulations were issued by the Board of Education providing for the first time for the payment of grants in respect of medical inspection, in addition to those formerly payable in respect of medical treatment. The grant for the year under notice was equal to 46 per cent. of the County Council's total expenditure under this head. In announcing a grant of more than £31,000 the Board expressed their appreciation of the improvements effected in the work of the authority's school medical service and, in particular, their recognition of the extension of facilities for treatment. Moreover, in Sir George Newman's recent report to the Education Department,[2] referring to the medical treatment of London school children under the County Council's scheme, the following sentence occurs: "In any case, the figures clearly indicate the vast amount of benefit that is accruing to the defective school children of London as the result of the Council's organised scheme of medical inspection and treatment."

*Public Health Laboratory.*

A well-equipped laboratory has recently been established by the County Council which, as part of the public health organisation, has already been found valuable by the medical department. Amongst other uses it frequently affords a trustworthy means of diagnosis in cases of sore throat associated with infectious disease, as well as in doubtful cases of ringworm, favus, and other microbic affections. It has consequently been of great assistance in the detection of possible foci of infection in the Council's schools; in addition to which, specimens are frequently received for bacteriological examination from the places of detention and the industrial schools belonging to the County Council. The number of cultures examined in this laboratory in the course of 1913 has exceeded 2000.

*Infectious Diseases amongst School Children.*

*Scarlet fever.*—Compared with the average for the three previous years, scarlet fever showed a considerable increase in London schools.

*Measles.*—The incidence of measles amongst school children was lower in 1913 than in any of the preceding seven years. Among measures for limiting measles prevalence compulsory notification has been fairly tried, but seldom with success. For protective purposes exclusion from school is now generally confined to children in the infant departments, more than 90 per cent. of the children attacked being below 5 years of age. The severity of attack largely depends on the age of the patient. The younger children usually suffer excessively and are more liable than their elders to complications which may be fatal or may predispose to tuberculosis, ear discharge, or injury to eyesight. Accordingly, if children cannot be prevented from eventually contracting measles, efforts should at any rate be made to protect them from attack in early infancy.

*Diphtheria.*—Diphtheria prevalence was more marked in London than in the provinces. Of the London attacks notified at all ages more than one-third occurred among school children. Many schools which showed a tendency to spread the infection by contact were kept under constant observation by school doctors, and 2220 cultures were forwarded for examination in the laboratory. True diphtheria germs were identified in 112 cases, whilst a further 212 cultures contained germs not definitely distinguishable from the Klebs-Löffler bacillus. Still unsolved is the difficulty of dealing effectually with bacteriological cases of diphtheria in which the usual clinical symptoms of the disease are not apparent. Further research in this direction is therefore desirable.

*Ringworm and favus.*—The differential diagnosis between these diseases is by no means easy to make, and the importance of laboratory aids to diagnosis is apparent in the discovery of these otherwise unrecognised cases. Of the 76 cases of favus reported during the past two years no fewer than 63 have been discovered by microscopical examination in the Public Health Department. During 1913 large numbers of specimens of hair have been sent to the laboratory by school doctors for microscopic examination. Out of 3464 specimens submitted ringworm was found in 1979 cases and favus in 57 cases; in 1415 cases no fungus was found. Ringworm involves so much interference with school attendance and with the educational progress of children that it would be a misfortune if treatment by X rays, the speediest known method of cure, were discontinued. Much improvement has recently been effected in the method of applying the X rays. Most of the cases where unsatisfactory results have been recorded date from the early days of that treatment.

[1] Published by P. S. King, Limited, London, price 2s. 6d. Part I. Public Health) was reviewed in THE LANCET of April 3rd, p. 720.

[2] THE LANCET, Jan. 9th, 1915, p. 84.

*Tuberculosis amongst School Children.*

In the routine work of medical inspection special attention is given to the detection of early tuberculosis amongst school children, the object being to place them promptly under the treatment of the School Care Committee. In the schools examined during the year 0·41 per cent. of the children examined were found to be the subjects of pulmonary tuberculosis, and 0·32 per cent. of other tuberculous affections. On the whole it appears that the incidence of tuberculosis in school children varies inversely with the average standard of comfort in the home. The close interrelation of malnutrition with tuberculosis is generally recognised and has been confirmed by recent investigations.

*Open-air Schools.*

The two open-air schools maintained by the Council have been in operation throughout the winter with uniformly good results to the children's health. Medical inspection of the ordinary elementary schools has abundantly proved the need for additional schools on the open-air principle, but for these it has hitherto been found impossible to obtain suitable sites either north or south of the Thames. Particulars are given of the schools at Birley House and Shooter's Hill and of the defects noted among the children there resident, as well as of the considerable numbers of children returned to ordinary elementary schools because of improvement in their physical condition. Last year's experience of the former school confirms that of the previous six years as to the existence of a large class of delicate children who are capable of mental and physical improvement in such schools. At the Shooter's Hill school, where the average attendance is about 100, so great was the improvement effected by the treatment there received that nearly one-third of the pupils were discharged in 1913 as fit to return to the ordinary elementary schools. Figures are given showing measurements of the height, weight, and chest capacity of the boys and girls respectively. These figures show general amendment, which is also borne out by the increased smartness and intelligence observed in the children. It is frequently stated that after a sojourn at Shooter's Hill school children previously regarded as almost defective mentally had returned completely changed—bright, energetic, and good workers, in strong contrast with their condition prior to entering that institution.

*Personal Hygiene and Cleanliness.*

In the report for last year the development of the "cleansing scheme" was traced from the purely voluntary work effected in 1902 to the County Council's arrangements of 1912, whereby cleansing centres were established and a large staff of specially trained nurses were appointed. In the year under review nearly 859,000 children were examined, more than 29,000 of whom were found to be verminous. The fact that an increasing proportion of these children are now voluntarily cleansed at home shows that parents are at length beginning to realise the importance of cleanliness to the well-being of their offspring. The scheme for dealing with unclean heads and verminous bodies has been modified so as to accelerate the process of cleansing and to secure closer coöperation with the local authorities in dealing with clothing, &c., in the homes of the children.

# VITAL STATISTICS.

## HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last census, 8917 births and 6879 deaths were registered during the week ended Saturday, March 27th. The annual rate of mortality in these towns, which had declined from 20·7 to 19·3 per 1000 in the five preceding weeks, rose in the week under notice to 19·8 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of 1914. During the first 12 weeks of the quarter just ended the mean annual death-rate in these towns averaged 19·5, against a corresponding rate of 20·5 per 1000 in London. The annual death-rate during the week ranged from 6·1 in Lincoln, 9·7 in Leyton, 9·9 in Grimsby, 10·5 in Stockton-on-Tees, and 10·6 in Barnsley, to 26·4 in Salford, 27·5 in West Hartlepool, 28·1 in Northampton, 30·0 in Wolverhampton, and 34·2 in Aberdare.

The 6879 deaths from all causes were 165 in excess of the number in the previous week, and included 695 which were referred to the principal epidemic diseases, against numbers increasing from 511 to 739 in the six preceding weeks. Of these 695 deaths, 397 resulted from measles, 127 from whooping-cough, 70 from infantile diarrhœal diseases, 58 from diphtheria, 31 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·0, or 0·1 per 1000 less than in the previous week. The deaths attributed to measles, which had increased from 207 to 421 in the six preceding weeks, fell to 397, and caused the highest annual death-rates of 3·4 in Croydon, 3·7 in Merthyr Tydfil, 4·1 in Smethwick, 4·4 in Darlington, 5·3 in West Bromwich, 6·0 in Wolverhampton, 7·4 in Northampton, and 9·7 in West Hartlepool. The deaths referred to whooping-cough, which had been 110, 120, and 151 in the three preceding weeks, fell to 127, and included 31 in London, 10 in Liverpool, 6 in Bristol, 5 each in Brighton and Birmingham, and 4 each in Leeds, Merthyr Tydfil, and Aberdare. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 71, 77, and 63 in the three preceding weeks, rose to 70, of which 24 were registered in London, 6 in Birmingham, and 5 in Liverpool. The deaths attributed to diphtheria, which had been 64, 51, and 61 in the three preceding weeks, fell to 58 and included 16 in London, 8 in Birmingham, and 3 in Liverpool. The deaths referred to scarlet fever, which had been 32, 21, and 29 in the three preceding weeks, rose to 31, of which 13 occurred in London, and 2 each in Ipswich and Wigan. The fatal cases of enteric fever, which had been 10, 15, and 14 in the three preceding weeks, fell to 12, and included 5 in London and 3 in Manchester.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 5036 to 2730 in the 17 preceding weeks, had further fallen to 2672 on Saturday, March 27th; 301 new cases were admitted during the week, against 298, 275, and 289 in the three preceding weeks. These hospitals also contained 1445 cases of diphtheria, 342 of measles, 57 of enteric fever, 16 of whooping-cough, and 3 of small-pox. The 1935 deaths from all causes in London were 112 in excess of the number in the previous week, and corresponded to an annual death-rate of 22·3 per 1000. The deaths referred to diseases of the respiratory system, which had been 468, 442, and 478 in the three preceding weeks, further rose to 481 in the week under notice, and were 190 above the number recorded in the corresponding week of last year. The deaths from influenza numbered 65, against 48, 54, and 67 in the three preceding weeks.

Of the 6879 deaths from all causes in the 96 towns 224 resulted from different forms of violence and 495 were the subject of coroners' inquests, while 1930 occurred in public institutions. The causes of 51, or 0·7 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Sheffield, Leeds, Bristol, West Ham, Bradford, Hull, and in 63 other smaller towns. Of the 51 uncertified causes, 10 were registered in Birmingham, 4 each in Liverpool and Preston, 3 in Southend-on-Sea, and 2 each in London, Reading, Stoke-on-Trent, Southport, Darlington, Sunderland, South Shields, and Gateshead.

## HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1290 births and 948 deaths were registered during the week ended Saturday, March 27th. The annual rate of mortality in these towns, which had been 23·2, 20·9, and 20·8 per 1000 in the three preceding weeks, rose to 21·1 per 1000 in the week under notice. During the first twelve weeks of the quarter just ended the mean annual death-rate in these towns averaged 22·4, against 19·5 per 1000 in the large English towns. Among the several towns the death-rate during the week ranged from 13·0 in Coatbridge, 13·7 in Falkirk, and 14·0 in Ayr, to 23·1 in Aberdeen, 25·4 in Kilmarnock, and 29·1 in Dundee.

The 948 deaths from all causes were 12 in excess of the number in the previous week, and included 132 which were referred to the principal epidemic diseases, against 131 and 139 in the two preceding weeks. Of these 132 deaths, 81 resulted from whooping-cough, 21 from measles, 12 from scarlet fever, 10 from infantile diarrhœal diseases, 7 from diphtheria, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·9, against 2·0 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had been 91, 87, and 88 in the three preceding weeks, fell to 81, and included 46 in Glasgow, 13 in Dundee, 11 in Edinburgh, and 4 in Kilmarnock. The deaths referred to measles, which had been 21, 15, and 26 in the three preceding weeks, fell to 21, and comprised 14 in Glasgow and 7 in Dundee. The fatal cases of scarlet fever, which had been 9, 13, and 11 in the three preceding weeks, were 12 in the

week under notice, and included 6 in Glasgow and 2 each in Aberdeen and in Paisley. The deaths of infants (under 2 years) attributed to diarrhœa and enteritis, which had been 7, 5, and 6 in the three preceding weeks, rose to 10, of which 5 occurred in Glasgow and 2 in Aberdeen. The deaths referred to diphtheria numbered 7, against 15, 10, and 7 in the three preceding weeks, and included 4 in Glasgow. The fatal case of enteric fever was registered in Paisley. In addition to the above deaths a fatal case of typhus fever was recorded in Dundee.

**The deaths referred to diseases of the respiratory system, which had been 264, 215, and 188 in the three preceding weeks, further fell to 186 in the week under notice, but were 75 above the number recorded in the corresponding week of last year. The deaths attributed to violence numbered 34, against 23 and 36 in the two preceding weeks.**

### HEALTH OF IRISH TOWNS.

**In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 651 births and 555 deaths were registered during the week ended Saturday, March 27th. The annual rate of mortality in these towns, which had declined from 27·6 to 24·0 per 1000 in the four preceding weeks, further fell to 23·9 per 1000 in the week under notice. During the first 12 weeks of the quarter just ended the mean annual death-rate in these towns averaged 25·6, against corresponding rates of 19·5 and 22·4 per 1000 in the English and Scotch towns respectively. The annual death-rate during the week under review was equal to 26·8 in Dublin (against 22·3 in London and 21·8 in Glasgow), 21·3 in Belfast, 26·5 in Cork, 34·2 in Londonderry, 20·3 in Limerick, and 11·4 in Waterford, while in the 21 smaller towns the mean rate was 22·4 per 1000.**

**The 555 deaths from all causes were 3 fewer than the number in the previous week, and included 47 which were referred to the principal epidemic diseases, against 37 and 36 in the two preceding weeks. Of these 47 deaths, 16 resulted from whooping-cough, 12 from measles, 11 from infantile diarrhœal diseases, 6 from scarlet fever, and 2 from diphtheria, but not one from enteric fever or from small-pox. The mean annual death-rate from these diseases was equal to 2·0, against corresponding rates of 2·0 and 2·9 per 1000 in the English and Scotch towns respectively. The deaths attributed to whooping-cough, which had been 10, 12, and 14 in the three preceding weeks, further rose to 16, of which 10 were recorded in Dublin and 3 in Belfast. The deaths referred to measles, which had been 8 in each of the four preceding weeks, rose to 12, and included 4 each in Belfast and Coleraine and 2 in Portadown. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 11, 14, and 4 in the three preceding weeks, rose to 11, of which 6 were registered in Dublin and 3 in Belfast. The 6 deaths attributed to scarlet fever were 2 in excess of the average in the earlier weeks of the quarter, and included 3 in Cork. The fatal cases of diphtheria were recorded in Dublin and Belfast respectively.**

**The deaths referred to diseases of the respiratory system, which had been 188, 167, and 155 in the three preceding weeks, further fell to 145 in the week under notice. Of the 555 deaths from all causes, 157, or 28 per cent., occurred in public institutions, and 8 resulted from different forms of violence. The causes of 17, or 3·1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 0·7 per cent.**

## THE SERVICES.

### ROYAL NAVY MEDICAL SERVICE.

THE undermentioned have been granted temporary commissions as Surgeons in His Majesty's Fleet:—George Murray Heiron, Charles Edward Reckitt, William Whitfield, Marmaduke Fawkes, Hugh Bernard German, William Gifford Wyllie, Harry Aitken Hewat, and John Benjamin Crawford.

The following appointments have been notified:—Staff-Surgeon: G. S. Davidge to the *Sirius*. Surgeon: A. V. J. Richardson to the *Brilliant*.

### ROYAL NAVAL VOLUNTEER RESERVE.

Temporary commissions in the Royal Naval Volunteer Reserve have been issued as follows:—Dental Surgeons: Stanley Maddox Gardner, Clementson Glover, Alan Basil Hacking, Roy William List, Frederick William Paul, Edwin Joseph Handford, and Herbert John Corin.

### ROYAL ARMY MEDICAL CORPS.

The undermentioned are granted temporary rank whilst serving with the Field Ambulances of the Welsh Division:—As Lieutenant-Colonel: John Edward Henry Davies dated Dec. 2nd, 1914), Major Robert John Richard Cobden Simons, Territorial Force (dated Jan. 9th), and Captain Thomas Price Thomas, Territorial Force (dated Jan. 6th). As Major: William Bickerton Edwards (dated Dec. 2nd, 1914). As Captain: Andrew Woodroffe Anderson (dated Dec. 2nd, 1914) and Edward Llewelyn Parry-Edwards (dated Jan. 30th). As Lieutenant: Frederic Samuel Rowland (dated Dec. 20th, 1914).

The undermentioned Lieutenants to be Captains:—Dated March 30th: Alexander G. Biggam, Roy K. Mallam, William McNaughtan, David T. M. Large, Walter W. Pratt, William F. Christie, Maurice Burnett, Alexander Hood, Edward A. Strachan, Cuthbert J. Blaikie, James H. M. Frobisher, Walter B. Stevenson, John L. Ritchie, David T. Richardson, Owen W. J. Wynne, Christopher M. Ingoldby, Sydney J. Higgins, Gilbert A. Blake, Percy A. With, Cuthbert J. H. Little, Stephen J. Barry, Robert W. Vint, Henry R. L'Estrange, Harold W. L. Allott, Edward P. A. Smith, Robert B. Price, James B. A. Wigmore, John Hare, Robert A. Flood, Eric C. Lang, William V. Corbett, Leopold T. Poole, Thomas H. Balfour, Frank C. Cowtan, Charles C. Jones, Edward V. Whitby, Edmund U. Russell, Robert G. Shaw, Norman W. Stevens, Richard B. Phillipps, Alexander L. Urquhart, Noel T. Whitehead, James C. Sproule, Avenell F. C. Martyn, George F. Allison, Robert C. Carlyle, John E. Hepper, Arthur A. M. Davies, Leslie Dunbar, Henry F. Panton, Henry Beddingfield, D.S.O., Frederick C. Davidson, Stanley D. Large, Cyril Helm, Humfrey N. Sealy, Albert Jackson, Edward C. Beddows, George E. Dyas, Conyngham V. Thornton, John Rowe, William P. Croker, Arthur B. H. Bridges, Aubrey G. Brown, Percival D. Warburton, Robert Hemphill, Summer H. Smith, Ernest W. Wade, Bernard Woodhouse, William K. Morrison, Edgar Percival, Henry C. D. Rankin, Treffry O. Thompson, Stanley J. Linzell, Lewis R. Shore, Allan Watson, Norman V. Lothian, John G. Gill, Sidney M. Hattersley, John W. C. Stubbs, Arthur J. A. Menzies, John Fitz G. Gwynne, Thomas F. P. Breen, David C. G. Ballingall, Herbert G. Winter, James M. Evatt, Francis G. Thatcher, William P. Mulligan, Gerard P. Selby, John G. Butt, Neil Cantlie, Edward A. P. Brock, Percival T. Priestley, Edward Phillips, Spence D. Reid, Peter J. Ryan, Barcroft J. L. Fayle, and Evelyn A. Sutton.

Temporary Lieutenant Claude W. S. Saberton relinquishes his temporary commission on account of ill-health (dated March 17th).

### SPECIAL RESERVE OF OFFICERS.

*Royal Army Medical Corps.*

The undermentioned Lieutenants are confirmed in their rank:—Eric S. Mawe, Edward W. Mann, and Sydney W. Lund.

### TERRITORIAL FORCE.

*Royal Army Medical Corps.*

1st Home Counties Field Ambulance: Lieutenant Charles Killick to be Captain (temporary).

2nd Home Counties Field Ambulance: Captain Antony A. Martin to be Major (temporary).

2nd East Anglian Field Ambulance: Lieutenant James Arthur, from Attached to Units other than Medical Units, to be Lieutenant.

1st West Lancashire Field Ambulance: Surgeon-Captain James Wood, from 5th Battalion, The Loyal North Lancashire Regiment, to be Captain.

2nd London (City of London) Field Ambulance: Lieutenant Horace G. L. Haynes to be Captain, and William Travers Homan to be Lieutenant.

2nd Lowland Field Ambulance: Major William Bryce, from 1st Lowland Field Ambulance, to be Major.

3rd Lowland Field Ambulance: Captain James W. Keay to be Major (temporary).

1st East Anglian Field Ambulance: Transport Officer and Honorary Lieutenant Frederick Harris resigns his commissions.

3rd London (City of London) Field Ambulance: Major George L. L. Lawson to be Lieutenant-Colonel (temporary).

6th London Field Ambulance: William Henry Dickinson to be Lieutenant.

2nd Northumbrian Field Ambulance: Clifford Crawshaw Pickles (late Lieutenant, 5th Battalion, Alexandra, Princess of Wales's Own (Yorkshire Regiment), to be Captain (temporary).

2nd Wessex Field Ambulance: Lieutenant Henry W. Spaight resigns his commission on account of ill-health.

3rd East Anglian Field Ambulance:—The undermentioned to be Lieutenants: Alexander Cuffe and Edward Knox Goodwin.

1st East Lancashire Field Ambulance: Lieutenant Henry E. Fox, from Attached to Units other than Medical Units, to be Lieutenant.

3rd South Midland Field Ambulance: Captain Charles Corfield, from Attached to Units other than Medical Units, to be Captain.

1st Southern General Hospital: Eric Walter Assinder to be Captain (temporary).

South Midland Casualty Clearing Station: William Albert Higgins to be Lieutenant.

1st London (City of London) Sanitary Company: Henry Holroyd to be Lieutenant.

West Riding Divisional Sanitary Section: Surgeon Captain Harold F. Horne, from the 5th Battalion, The York and Lancaster Regiment, to be Captain.

*Attached to Units other than Medical Units.*—Captain John Hobbs is seconded. To be Captains: John Alban Davies (late Captain, 7th (Merioneth and Montgomery) Battalion, The Royal Welsh Fusiliers) and Lieutenant Oskar Teichmann. To be Lieutenants: Lieutenant Alfred H. Bell, from 5th London Field Ambulance, Gerald Wetherell Capron Hollist (late Surgeon, Royal Navy), Reginald Devereux Moore, Charles Nyhan (late Lieutenant, 3rd Battalion, The Monmouthshire Regiment), and Berkeley Noel Ash.

## THE NATIONAL INSURANCE ACT.

### *Exempt Persons.*

DRAFT regulations, dated March 16th, 1915, have been issued to deal with the limited benefits to be enjoyed under the Insurance Acts by "exempt persons"—i.e., by those who on account of their having means of livelihood independently of their wages from their employers are allowed exemption from contributing to the National Insurance Funds. Employers, it will be remembered, pay the same contributions for exempt persons as for others. Under the new regulations, and subject to the restrictions and conditions prescribed by them, exempt persons will enjoy medical benefit and sanatorium benefit, described in the regulations as "the benefits," an exempt person in respect of whom not less than 20 weekly contributions have been paid being entitled to apply to the Commissioners, and to enjoy the benefits, subject to the regulations being otherwise satisfied, six weeks later. An exempt person who does not so apply, but for whom 20 contributions have been paid, becomes entitled at the commencement of the next benefit period after that in which the twentieth payment on his behalf was made, and provision has necessarily had to be made for those cases in which broken periods of contribution and other circumstances have to be taken into consideration. Contributions out of the Exempt Persons Fund, which is instituted as a separate fund, are to be made to the General Medical Benefit Fund, the General Medical Benefit Administration Fund, and the General Sanatorium Benefit Fund.

### *Complaints against Medical Practitioners in London.*

The reports of subcommittees laid before the London Insurance Committee at its recent meeting contain a good deal of information as to the practical working of the Insurance Acts in the abnormal circumstances created by the war. The report of the Medical Service Subcommittee upon complaints against medical practitioners upon the panel for the County of London commences with a question arising out of an incident which took place at the end of November, and discloses nothing of a serious nature with regard to the supply of medical treatment in the metropolis. Among ten cases investigated three complaints referred to the same practitioner, and of the remaining complaints only two are found to be wholly or partly justified. One of these related to the conduct of a practitioner who declined to visit a patient when sent for, on the ground that he could not quit his surgery at the time. The patient was thus left without medical attention for nearly two days while suffering from a broken leg. The practitioner pleaded that he was ill and had been unable to obtain a locum-tenent. He had also apparently been under the impression that he was not required to provide treatment in cases of accident, and had so informed the patient's messenger, and he had given the messenger a bottle of liniment, with directions, without having seen the leg, which he had been told was broken, and which in fact was broken. The subcommittee found the complaint of neglect to be substantiated, and recommended severe censure for the practitioner. He was required to make provision for a deputy to act on his behalf when unable to attend his patients personally, and his conduct in prescribing without having seen his patient was made the subject of a separate resolution.

### *Excessive Prescribing and London Practitioners.*

The Panel Committee (London) reporting upon cases submitted to them for investigation by the Pharmaceutical Committee, and relating to drugs prescribed in May, 1914, stated that in the case of four practitioners on the panel the cost of drugs and appliances was in excess of what was reasonably necessary for the adequate treatment of their patients; that in the case of three practitioners there was no such excess; that in the case of four others they were unable to come to a decision upon the materials before them. The consideration of these last was therefore postponed. In the case of seven others circumstances prevented the committee from making an investigation.

## Obituary.

### SIR JOHN LENTAIGNE, F.R.C.S. IREL.,

PAST PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE death of Sir John Lentaigne occurred suddenly at his residence in Dublin on March 30th in his sixtieth year. He had been feeling unwell for a few days, but thought little of it, and was persuaded with difficulty to remain in bed on the morning of his death. Early in the afternoon, while talking with two of his colleagues, he suddenly expired. He had been sorely tried a few months ago by the loss of one of his sons at the battle of the Aisne. The lad, a lieutenant in the Connaught Rangers, who had just entered the service, was first reported "missing," and it was not until after some weeks that the fact of his death was ascertained. The anxiety and grief made an indelible mark on his father's health. Only a few weeks ago Sir John Lentaigne suffered a further loss in the death of his brother.

Sir John Lentaigne was the grandson of a French *émigré* of good family who settled in Dublin at the time of the Revolution and became a prominent medical practitioner. On account of his nationality he was chosen to attend Wolfe Tone in prison in his last illness. Lentaigne's father was a Government official in Ireland, and was knighted for his public services. John Lentaigne, born in Dublin in 1855, was educated first at Clongowes College and later at Vannes in France, and then entered Trinity College. He received his medical education at the Catholic University School of Medicine. He graduated B.A. of Trinity College in 1880, and received the licences of the Royal Colleges in the following year. In 1886 he was admitted a Fellow of the Royal College of Surgeons in Ireland. Having been for a short time assistant surgeon to the Richmond Hospital, he became one of the visiting surgeons to Jervis-street Hospital in 1883, and four years later he left there for the Mater Misericordiæ Hospital, where he worked regularly up to the time of his death. He was for many years consulting surgeon to the Royal Hospital for Incurables, and also one of the Lord Chancellor's Visitors in Lunacy. He was surgeon to the household of successive Viceroys for the past 18 years. For 15 years he was a member of the Council of his College, and in 1908 he was elected President. In 1910 he was knighted.

Sir John Lentaigne's reputation as a surgeon was high. He made no claim to great originality, but his work bore the mark of thoroughness and sound experience. He took infinite pains to do the best for his patients, and the most tedious case never exhausted his interest. In his early days, when antisepsis was still little understood and

asepsis unknown, he attracted attention and even astonishment by his rigorous methods. He did well in private practice. His family position, his ability, and his charm of character combined to make his career successful. No stress of work, however, was allowed to distract him from the due performance of his hospital duties. Sir John Lentaigne's character and manner were singularly attractive. Until within the last few months, when sorrow tried him, he seemed to be of those who never grow old. He had the *joie de vivre* of a boy, and he had also the frankness and straightforward simplicity of a boy. Success did not spoil him. To his brother practitioners he was always the honourable and kindly comrade, to whom professional jealousy was a thing unknown. In private life he was the soul of geniality, but it was the geniality that rests on a strong foundation of character. In Lentaigne's death not only the Dublin school of surgery but the medical profession have lost a man of outstanding character. His friends miss one of the most lovable of their circle.

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### BERNARD ROTH, F.R.C.S. ENG.

Mr. Bernard Roth, whose death at the age of 63 we briefly announced in our last issue, was the eldest son of the late Dr. M. Roth, of Wimpole-street, W. After obtaining his M.R.C.S. in 1874 he became house surgeon at University College Hospital, and also studied at Brussels, Paris, Vienna, and Berlin. In 1875 he took the L.S.A. and the M.D. Brux., and joined his father in orthopædic practice, being particularly interested in the treatment of lateral curvature of the spine. In 1878 he married Anna Elizabeth, third daughter of the late Right Hon. John Bright, P.C., M.P., of One Ash, Rochdale, and in the same year obtained the F.R.C.S. Eng. From then onwards he took a leading place among orthopædic surgeons, and devoted his energies to introducing to the medical world a more rational method of treating lateral curvature than was then in use. He was particularly opposed to its treatment by mechanical supports, and through his writings and demonstrations did much to open the eyes of his professional brethren to the harmfulness of such methods.

In 1888 he was elected a corresponding member of the American Orthopædic Association, and in the following year published "The Treatment of Lateral Curvature of the Spine," a second edition of which he brought out ten years later. In the treatment of other orthopædic conditions he was much influenced by his friendship with the late H. O. Thomas, of Liverpool, and frequently attended Thomas's Sunday morning clinics. At these Thomas saw patients at his house free of charge, and his rooms were thronged with scores of patients waiting for his opinion and advice. He was thus one of the first surgeons to become expert in the application of Thomas's splints, now so universally in use. He carried on his practice daily in both London and Brighton for 27 years, travelling by the midday train between the two. At Brighton he held the posts of orthopædic surgeon to the Royal Alexandra Hospital for Children and surgeon to the St. John's Convalescent Home.

In his later years he was much interested in numismatics, and besides other papers published in 1910 a monograph on the Hiberno-Danish coins. At the time of his death he was a Vice-President of the British Numismatic Society and of the Royal Numismatic Society, and a Fellow of the Society of Antiquaries. He also occupied himself with magisterial work, being a J.P. for Brighton (1892), a J.P. for Middlesex (1905), and a Visiting Justice, H.M. Prison, Pentonville.

He leaves a wife and two children, a son and daughter, the former of whom, Paul Bernard Roth, follows his father's profession.

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### JOHN VINRACE, M.D. ST. AND., M.R.C.S. ENG., L.S.A.

Dr. John Vinrace died at his residence, "Denehurst," Oxford-road, Moseley, on March 12th, at the age of 81. The eldest son of the late Mr. Luke Vinrace, of Ashby-de-la-Zouch, he went to Birmingham in 1851, when he was apprenticed to a medical man and studied at the old Sydenham College, also acting as indoor surgical assistant at the General Hospital. In 1855 he qualified as M.R.C.S. Eng. and L.S.A., and two years later graduated as Doctor of Medicine at the University of St. Andrews. He first started practice in Moseley, but later he entered into partnership at Birmingham. He returned to Moseley some 15 years ago, when he retired. He was one of the oldest and most respected practitioners in Birmingham.

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# Correspondence.

"Audi alteram partem."

## THE DEARTH OF DOCTORS.

*To the Editor of* THE LANCET.

SIR,—Day by day the seriousness of the situation created by the war is deepening, while with those best fitted to judge the demand for more and more doctors seems as steadily to be increasing. Are we then to go on muddling over the question of how best to provide for the inevitable emergency, or shall we take decided steps to deal radically with the situation? Yeoman service has been done by Dr. N. Walker and the Scottish Committee in the interests of the profession as well as of the public at large. But, all the same, it must be allowed that these public-spirited gentlemen have been able to do but little to meet the undoubted dearth of doctors, the deficiency affecting not only the present but the future supply of medical practitioners.

To deal adequately with the position there is only one way of going to work, and that is to revert to the old four years' curriculum. There need be less reluctance against the apparent reduction of the standard of qualification, when it cannot be denied that the change made less than 30 years ago has failed to meet the paramount argument for extending the course of study—i.e., the provision for an extra year to be solely devoted to *practical* bedside work—a result which the change has notoriously not effected. With a sufficiently strict final examination there need be no fear, any more than was the case 30 years ago, of the standard for admission to the Register being degraded to an injurious extent, while the expense of medical education would be lessened. Above all, the change would result in an annual addition of 20 per cent. to the roll of diplomates.

I have just been told of the case of a candidate for the B.D. degree in one of our Scottish Universities who has joined Kitchener's army. Although

he is short by a year of completing his curriculum he is to be allowed to sit for his degree. If he be fortunate enough to pass will his fellow graduates think the less of him? War excuses many things which are then a glory and not a disgrace.

I am, Sir, yours faithfully,

WILLIAM BRUCE, M.D. Aberd.,
Late Member of the General Medical Council.

Dingwall, N.B., March 30th, 1915.

## THE "ELIZABETH ROSS" BED.

*To the Editor of* THE LANCET.

SIR,—To those who have read about the terrible struggle against disease and the efforts made to succour the wounded in Serbia at the present time, nothing can have appealed more strongly to public sympathy than the heroic action of the late Dr. Elizabeth Ross, Tain, who added to the glorious record of the medical profession in this terrible war by giving her life to save that of others. It has been felt that in this town, so closely associated with her and her family, some memorial of such self-sacrifice should be set on foot, and that nothing could be more fitting than the establishment of a bed in the hospital at Kragujevatz, where she died. It is hoped that this scheme will appeal not only to those who knew her personally, but to a much wider public, who will welcome an opportunity of showing their appreciation of her heroic action.

Many of us are debarred from active service either in battle-field or field hospital, but we can all "do our bit" by giving to such schemes as this; and surely no more fitting memorial could be raised to this brave woman's memory than one calculated to benefit the country where she laid down her life and where the need at the present time is such a crying and terrible one. Her brothers and sisters of the medical faculty will doubtless be glad to "place a stone on the cairn" of one who has added glory to the noble records of their profession and sacrificed her life in the execution of its duties.

Anything collected over the sum required will be used either in the establishment of a second bed, or in some way to provide medical or surgical comforts to alleviate the terrible distress in Serbia, which Dr. Ross gave her life to help.

Messrs. Wallace and Fraser, Tain, have kindly opened a list for local subscriptions; and donations, large or small, will also be gratefully received and acknowledged by any of the undersigned.

Yours faithfully,

E. K. MACKENZIE, M.D. Aberd.,
Shandwick House, Tain.
(Mrs.) C. IRWIN SMART,
Drynoch Lodge, Tain.
SUTHERLAND M. ROSS,
Woodbine, Tain.

Tain Ross-shire, N.B., April 5th, 1915.

## STOMACH *V.* HEART IN RELATION TO PRÆCORDIAL PAIN AND SUDDEN DEATH.

*To the Editor of* THE LANCET.

SIR,—Mr. Walter Verdon's letter in THE LANCET of April 3rd bears out in many ways one's own personal observations in relation more especially to intercostal pain and heart disease. His contention, as I read it, is that segmental neurosis of that area of the cord which more immediately subserves the regions in the neighbourhood of the heart itself predisposes to anginal attacks, and, similarly, neurosis in other regions may favour spasmodic alimentary disorders. Such a neurosis may be secondary, I take it, to cardiac trouble, but not necessarily so. In a case I had recently under observation the relation of the pain or algesia to the frequent true anginal attacks from which she suffered could with difficulty be explained by any means other than some such segmental neurosis. This patient, who had well-marked aortic incompetence, had from day to day definite areas of deep and superficial intercostal tenderness, varying in site, as Mr. Verdon observes, from day to day, though at times certain intercostal areas, particularly the fourth, would show algesia at exactly the tender spots peculiar to such nerves—namely, near the vertebra, in the axillary line, and near the sternum respectively. Very occasionally she would be free from such areas. In one such phase this patient, in my presence, had a definite anginal attack relieved after a few minutes by amyl nitrite. Afterwards there was not the slightest tenderness to be made out, contrary to what one ought to expect. The suggestion in such a case was that there was a segmental neurosis or possibly a definite radiculitis (the Wassermann was positive), and that this in the main predisposed to her attacks, which were exceptionally numerous. No stomach symptoms were ever present in this case. She died suddenly a few weeks ago.

The whole question of pain and cardiac disease requires more careful investigation than it has yet received.

I am, Sir, yours faithfully,

Manchester, April 4th, 1915. C. EDGAR LEA.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN (UNIVERSITY OF LONDON).—Dr. F. Wood-Jones, lecturer and head of the department of anatomy, has been granted the title of professor of anatomy in the University of London. The title of reader in pharmacology in the University of London has also been conferred on Dr. Fred Ransom, lecturer and head of the department of pharmacology. The Rose Neville scholarship of £150 a year for four, five, or six years, the Mabel Webb research scholarship of £30 for one, two, or three years, the St. Dunstan's exhibition of £60 a year for three or five years, the Mabel Sharman Crawford scholarship of £20 a year for four years, and the Isabel Thorne scholarship of £30 will be awarded during the summer term. Full particulars can be obtained on application to the secretary. Mr. A. G. R. Foulerton has been appointed lecturer in public health in succession to Professor W. J. Simpson, resigned. The Duchess of Marlborough has accepted the office of honorary treasurer of the extension fund, and Miss Edith Calkin, B.A., has been appointed organising secretary of the fund.

CHARGE OF DISPOSAL OF A BODY.—At the recent Galway Assizes, before Lord Justice Ronan, the Rev. Paul Burrus, Superior of Moyne Park Hospice for Infirm Clergymen, was found "Not guilty" of the charge "that he on Dec. 28th, 1914, having the custody of the dead body of the Rev. John Keane, who had died under circumstances which had rendered the holding of an inquest necessary, did dispose of the body with intent to prevent the holding of an inquest." It appeared from the evidence that on the morning of Dec. 26th Father Keane was found in the yard of the hospice in a dying condition, and that he died a little later. He had been of intemperate habits and rather infirm, and had been locked into his room the previous night by Father Burrus. There was reason to believe that he had fallen from his window. No death certificate was given, the medical officer to the institution being informed merely that Father Keane had died rather suddenly. Similar information was given to the police when an officer entered to make inquiries. In defence it was urged that the accused did not act with the intention of preventing the holding of an inquest. He was a foreigner who was probably imperfectly acquainted with English law and customs.

# THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE Fund during the fortnight that has elapsed since we reported upon its progress has received notable accretions.

The large local fund collected in Manchester has now been paid in to the treasurer, making an addition to our resources upon which an influential Manchester committee and Dr. E. M. Brockbank, the energetic secretary, may well be congratulated. Handsome subscriptions have reached the treasurer from Canada and New Zealand, while the funds in the Birmingham and Newcastle districts continue to grow.

The second subscription list of the Scottish Fund is published this week, and shows a total of over £1000.

## MANCHESTER AND DISTRICT.

A total of £588 17*s.* 6*d.* has been received, including £104 11*s.* from the pharmacists. The individual subscriptions have all been acknowledged in the press. Any further contributions should be sent direct to London, as this local fund is now closed.

| | £ | *s.* | *d.* |
|---|---|---|---|
| Dr. George Taylor ... | 2 | 2 | 0 |
| Dr. Arnold Gregory (second donation) ... | 1 | 1 | 0 |
| Dr. C. Carruthers ... ... | 1 | 1 | 0 |
| Dr. T. M. Popple ... ... | 1 | 1 | 0 |
| Dr. W. Chapman ... ... | 1 | 1 | 0 |
| Dr. J. T. McGlade... ... | 1 | 1 | 0 |
| Dr. W. Bradley ... ... | 1 | 1 | 0 |
| Dr. M. J. O'Doherty ... | 1 | 1 | 0 |
| Dr. C. H. Thompson ... | 1 | 1 | 0 |
| Dr. Colley Salter ... ... | 0 | 10 | 6 |

## THE SCOTTISH FUND.

The second list of subscriptions to the Scottish Fund brings the total subscribed to £1015 16*s.* The first list of subscriptions was published in our issue of March 13th.

| | £ | *s.* | *d.* |
|---|---|---|---|
| Amount previously acknowledged ... ... | 888 | 5 | 6 |
| Dr. R. P. McMorland ... | 1 | 1 | 0 |
| Dr. John Dalgleish ... | 5 | 0 | 0 |
| Dr. Robert Crawford ... | 2 | 2 | 0 |
| Dr. John Alex. Gray ... | 0 | 10 | 6 |
| Dr. A. S. Walker ... ... | 2 | 2 | 0 |
| Dr. H. L. Calder ... ... | 5 | 5 | 0 |
| Dr. Alex. Robb ... ... | 1 | 1 | 0 |
| Dr. H. E. Langwill ... | 3 | 3 | 0 |
| Miss Fanny Marshall ... | 0 | 12 | 6 |
| Dr. D. Gilmour ... ... | 0 | 10 | 6 |
| Dr. Alex. M. Malcolmson | 2 | 2 | 0 |
| Dr. L. W. C. Macpherson | 1 | 1 | 0 |
| Dr. F. I. Mackintosh ... | 1 | 1 | 0 |
| Dr. John Ritchie ... ... | 1 | 1 | 0 |
| Dr. Robert Abernethy ... | 2 | 2 | 0 |
| Dr. J. J. Graham Brown | 5 | 0 | 0 |
| Dr. Frederick Gourlay | 1 | 0 | 0 |
| Dr. G. R. E. G. Mackay | 3 | 3 | 0 |
| Mrs. Glen Henderson ... | 0 | 10 | 0 |
| Dr. George S. Carmichael | 2 | 2 | 0 |
| Dr. Ada Miller ... ... | 1 | 0 | 0 |
| Dr. James A. Adams ... | 2 | 2 | 0 |
| Dr. John Lindsay ... ... | 1 | 1 | 0 |
| Dr. W. F. Gibb ... ... | 1 | 1 | 0 |
| Dr. Geo. S. Middleton ... | 4 | 4 | 0 |
| Dr. E. H. L. Oliphant ... | 2 | 2 | 0 |
| Dr. W. J. Richard ... ... | 1 | 1 | 0 |
| Dr. P. S. Buchanan ... | 1 | 1 | 0 |
| Dr. R. Barclay Ness ... | 1 | 1 | 0 |
| Anonymous ... ... ... | 1 | 1 | 0 |
| Dr. Jane H. Filshill ... | 1 | 1 | 0 |
| Dr. Thos. Barr, per B.M.A. (Central Div.) | 3 | 3 | 0 |
| Dr. John Wright ... ... | 1 | 1 | 0 |
| Prof. T. K. Monro (additional) ... ... ... | 5 | 5 | 0 |
| Partick and District Medical Society ... ... | 5 | 0 | 0 |
| Dr. R. Speirs Fullarton | 1 | 1 | 0 |
| Dr. John Paterson ... | 1 | 1 | 0 |
| Dr. Alex. Munro ... ... | 2 | 2 | 0 |
| Dr. J. Maxwell Ross, Dumfries ... ... ... | 1 | 1 | 0 |
| Dr. Wm. Craig, Cowdenbeath ... ... ... | 3 | 3 | 0 |
| Dr. Geo. Hunter ... ... | 3 | 3 | 0 |
| Mr. Chas. W. Cathcart | 5 | 0 | 0 |
| Dr. W. Bruce, Dingwall | 0 | 10 | 6 |
| Messrs. Boot's Pure Drug Company, Limited, Nottingham | 5 | 5 | 0 |
| Mr. A. Kennedy, Edinburgh ... ... ... | 3 | 3 | 0 |
| Glasgow Chemists' Association and Pharmacy Athletic Club, per Mr. Wm. Selvwright, Glasgow... ... ... ... | 2 | 0 | 0 |
| Mr. A. P. McCallum, Edinburgh ... ... ... | 2 | 3 | 0 |
| West Fife Colliery Chemists' Association, per Mr. C. Hoy, Kelty | 1 | 7 | 0 |
| Mr. R. Cairnie, Lochgelly | 1 | 1 | 0 |
| Mr. M. Carmichael, Glasgow... ... ... ... | 1 | 1 | 0 |
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| Mr. James Finlay, Edinburgh ... ... ... ... | 1 | 1 | 0 |
| Mr. J. Fraser, Dumfries | 1 | 1 | 0 |
| Mr. Jas. Grant, Glasgow | 1 | 1 | 0 |
| Mr. John Hodge, Dundee | 1 | 1 | 0 |
| Messrs. W. O. Kay and Son, Cumnock ... ... | 1 | 1 | 0 |
| Mr. T. McKenzie, Inverness ... ... ... ... | 1 | 1 | 0 |
| Mr. J. B. McLaren, Kirkcaldy ... ... ... | 1 | 1 | 0 |
| Mr. J. H. Nicholson, Maxwelltown ... ... | 1 | 1 | 0 |
| Mr. A. W. Ritchie, Montrose ... ... ... | 1 | 1 | 0 |
| Mr. R. Robertson, Dunfermline ... ... ... | 1 | 1 | 0 |
| Mr. J. H. Scroggie, Lauder ... ... ... ... | 1 | 1 | 0 |
| Messrs. Smith and Govan, St. Andrews ... | 1 | 1 | 0 |
| Mr. George Somerville, Edinburgh ... ... | 1 | 1 | 0 |
| Mr. D. N. Wylie, Edinburgh ... ... ... ... | 1 | 1 | 0 |
| Mr. R. A. Scott, Motherwell ... ... ... ... | 1 | 0 | 0 |
| Mr. Alexr. Davidson, Montrose ... ... ... | 0 | 10 | 6 |
| Mr. D. Dunnet, Falkirk | 0 | 10 | 6 |
| Mr. J. S. B. Heddle, Leith | 0 | 10 | 6 |
| Mr. W. J. Jack, Lochgilphead... ... ... ... | 0 | 10 | 6 |
| Mr. J. G. Sclater, Edinburgh ... ... ... ... | 0 | 10 | 6 |
| Mr. F. W. Soddy, Glasgow | 0 | 10 | 6 |
| Mr. C. Stewart, Kirkcaldy | 0 | 10 | 6 |
| Mr. Robt. Aitken, Dunbar | 0 | 10 | 0 |
| Miss R. R. Bell, Edinburgh ... ... ... ... | 0 | 10 | 0 |
| Mr. D. Black, Glasgow... | 0 | 10 | 0 |
| Mr. A. J. Clark, Edinburgh ... ... ... ... | 0 | 10 | 0 |
| Mr. J. Smith, Aberlour... | 0 | 10 | 0 |
| Mr. D. Walker, Lockerbie | 0 | 10 | 0 |
| Miss M. D. Hutchison, Edinburgh ... ... ... | 0 | 9 | 0 |
| Mr. P. S. Beatton, Port Glasgow ... ... ... ... | 0 | 7 | 6 |
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| Mr. W. Barrie, Cambuslang | 0 | 5 | 0 |
| Mr. C. P. Bayne, Innerleithen ... ... ... ... | 0 | 5 | 0 |
| Mr. W. J. Cameron, Edinburgh ... ... ... ... | 0 | 5 | 0 |
| Mr. S. P. Crowden, Edinburgh ... ... ... | 0 | 5 | 0 |
| Mr. R. Fraser, Portobello | 0 | 5 | 0 |
| Mr. A. Gold, Larkhall ... | 0 | 5 | 0 |
| Mr. A. Inglis, Edinburgh | 0 | 5 | 0 |
| Mr. A. MacDonald, Dunfermline... ... ... ... | 0 | 5 | 0 |
| Mr. Peter Nisbet, Leith | 0 | 5 | 0 |
| Mr. A. A. Porteous, Lerwick ... ... ... ... | 0 | 5 | 0 |
| Mr. Findlay Stuart, Broxburn ... ... ... | 0 | 5 | 0 |
| Mr. J. M. Turner, Falkirk | 0 | 5 | 0 |
| Mr. Wm. Walker, Dundee | 0 | 5 | 0 |
| Miss E. R. Hodge, Dumbarton ... ... ... | 0 | 2 | 6 |

## THE FORTNIGHT'S SUBSCRIPTIONS.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, and not including money collected by the Scottish and Irish Funds, are as follows:—

| | £ | *s.* | *d.* |
|---|---|---|---|
| Dr. Carey Coombs ... ... | 2 | 2 | 0 |
| Lt.-Col. G. T. Langridge, R.A.M.C. ... ... ... | 1 | 1 | 0 |
| Tower Hamlets Division B.M.A. (per Dr. W. H. F. Oxley, Hon. Sec.) (third donation)— | | | |
| Dr. McCrae ... ... ... | 1 | 1 | 0 |
| Dr. Rosewarne ... ... | 2 | 2 | 0 |
| Dr. Arthur R. Randle ... | 1 | 1 | 0 |
| Southern Branch B.M.A. (per Dr. J. Green, Hon. Sec.)— | | | |
| Dr. E. L. Cambie ... | 2 | 2 | 0 |
| Dr. J. T. Leon ... ... | 2 | 0 | 0 |
| Capt. W. Carling, R.A.M.C. ... ... ... | 1 | 1 | 0 |
| Mr. Henry Rundle ... | 1 | 1 | 0 |
| Dr. L. K. H. Hackman | 1 | 1 | 0 |
| Dr. T. A. Mulcahy ... | 1 | 1 | 0 |
| Dr. Thos. Baker ... ... | 1 | 1 | 0 |
| Dr. T. S. Pennington Sparrow ... ... ... | 1 | 1 | 0 |
| Dr. A. E. Peters ... ... | 1 | 1 | 0 |
| Dr. C. D'A. Collings... | 1 | 1 | 0 |
| Dr. H. C. Major ... ... | 2 | 2 | 0 |
| Dr. Hutton Castle ... | 0 | 10 | 6 |
| Brigade-Surgeon J. W. Wilson ... ... ... | 1 | 1 | 0 |
| Dr. J. A. Gibson... ... | 1 | 1 | 0 |
| Col. W. E. Webb... ... | 1 | 1 | 0 |
| Dr. Alfred Hill ... ... | 1 | 1 | 0 |
| Lt.-Col. Le Mottée ... | 1 | 1 | 0 |
| Brig.-Surg. W. M. Harman ... ... ... | 3 | 3 | 0 |
| Dr. O. V. Payne... ... | 1 | 1 | 0 |
| Dr. J. B. Wood ... ... | 0 | 10 | 6 |
| Mr. C. Gordon Brodie | 2 | 2 | 0 |
| Lt.-Col. Dimmock ... | 2 | 2 | 0 |
| Dr. C. H. Fowler ... | 1 | 1 | 0 |
| Dr. D. A. Sheahan ... | 3 | 3 | 0 |
| Dr. E. Lawrie Robinson | 1 | 1 | 0 |
| Dr. H. J. Gauvain ... | 1 | 1 | 0 |
| Fleet-Surg. K. Hurlstone Jones, R.N. ... | 0 | 10 | 6 |
| Dr. Charles H. Bois ... | 0 | 10 | 6 |
| Capt. J. A. Cruickshank, I.M.S. ... ... ... ... | 1 | 1 | 0 |
| Major T. Hunter, I.M.S. | 3 | 0 | 0 |
| Birmingham Local Committee (per Dr. R. Saundby) (thirteenth donation, total £333 11*s.* 3*d.*)— | | | |
| Mrs. Allison... ... ... | 10 | 10 | 0 |
| North of England Branch (per Dr. James Don and Mr. A. S. Percival, Hon. Secs.) (6th donation, total £323 14*s.*)— | | | |
| Dr. W. Hay ... ... | 1 | 1 | 0 |
| Dr. A. S. Hedley ... | 1 | 1 | 0 |
| Dr. H. A. Edwards ... | 1 | 1 | 0 |
| Dr. Henry Smith ... | 2 | 2 | 0 |
| Dr. G. E. Welford ... | 1 | 1 | 0 |
| Dr. John Brown... ... | 1 | 1 | 0 |
| Dr. J. W. Blandford... | 2 | 2 | 0 |
| Dr. W. Petter ... ... | 1 | 1 | 0 |
| Dr. J. R. Baumgartner | 2 | 2 | 0 |
| Dr. George Murray ... | 1 | 1 | 0 |
| Dr. G. R. Philipson ... | 1 | 1 | 0 |
| Dr. John Wishart ... | 1 | 1 | 0 |
| Dr. Thos. F Johnston | 0 | 10 | 6 |
| Dr. T. Buckham... ... | 2 | 2 | 0 |
| Dr. G. H. Norris... ... | 5 | 5 | 0 |
| Dr. R. Parry ... ... | 2 | 2 | 0 |
| Dr. Wm. Allen ... ... | 1 | 1 | 0 |
| Dr. C. L. Fraser ... ... | 1 | 1 | 0 |
| Dr. G. B. Morgan ... | 1 | 1 | 0 |
| Dr. H. de Legh ... ... | 1 | 1 | 0 |
| Dr. T. A. McCullagh... | 1 | 1 | 0 |
| Dr. Wm. Scott ... ... | 1 | 1 | 0 |
| Dr. A. M. G. Walker... | 1 | 0 | 0 |
| Dr. Dora E. L. Bunting | 1 | 0 | 0 |
| Dr. Martin ... ... ... | 1 | 0 | 0 |
| Prof. Hutchens ... ... | 2 | 2 | 0 |
| Dr. Hart Jackson ... | 0 | 10 | 6 |
| Sir G. H. Philipson ... | 5 | 5 | 0 |
| Dr. R. Morris ... ... | 1 | 1 | 0 |
| Dr. R. McGregor ... | 1 | 1 | 0 |
| Dr. S. Basham ... ... | 2 | 2 | 0 |
| Dr. Dewar ... ... ... | 1 | 1 | 0 |
| Dr. A. Brown ... ... | 1 | 1 | 0 |
| Dr. G. Lloyd ... ... | 1 | 1 | 0 |
| Dr. and Mrs. A. Campbell ... ... ... | 2 | 2 | 0 |
| Drs. H. and S. Russell | 4 | 4 | 0 |
| Dr. A. Herbert Peters | 2 | 0 | 0 |
| Dr. R. B. Reed ... ... | 1 | 1 | 0 |
| Dr. A. Walker ... ... | 1 | 1 | 0 |
| Dr. U. B. Walker ... | 1 | 1 | 0 |
| Dr. C. H. Walker ... | 1 | 1 | 0 |
| Dr. G. M. Coull ... ... | 1 | 1 | 0 |
| Chichester and Worthing Division B.M.A. (per Dr. A. Morton Palmer, Hon. Sec.) (3rd donation)— | | | |
| Dr. R. M. Goring ... | 1 | 1 | 0 |
| Dr. D. Hethcote ... ... | 1 | 1 | 0 |
| Dr. G. F. Briggs ... ... | 2 | 2 | 0 |
| Mr. H. Crompton ... ... | 1 | 1 | 0 |
| Mr. F. W. Scanlon... ... | 0 | 10 | 6 |
| Mr. Waldron Griffiths ... | 0 | 10 | 6 |
| Buckrose Pharmacists Asso. (per Mr. P. Hawkins) ... ... ... | 1 | 10 | 0 |
| Mr. A. Chapman ... ... | 0 | 8 | 9 |
| Mr. G. Knowles ... ... | 1 | 1 | 0 |
| Mr. J. H. Hart ... ... | 1 | 1 | 0 |
| Lanarkshire Pharmacists' Asso. (per Mr. J. Lohoar) ... ... ... | 1 | 1 | 0 |
| Messrs. Fairchild Bros. & Foster... ... ... ... | 52 | 10 | 0 |
| Bath Pharmaceutical Asso., collected by Mr. D. A. Evans (per Mr. W. J. Hallett)— | | | |
| Messrs. Steele & March and Staff ... | 1 | 8 | 6 |
| Messrs. Hawes, Whiston & Co. ... ... ... | 0 | 10 | 6 |
| Mr. Luther Wilson ... | 0 | 10 | 6 |
| Messrs. A. C. Olds and Co. ... ... ... ... | 0 | 10 | 6 |
| Messrs. Tylee and Cooper ... ... ... | 0 | 10 | 6 |
| Messrs. Appleby and Co. ... ... ... ... | 0 | 10 | 6 |
| Mr. W. J. Hallett ... ... | 0 | 10 | 6 |
| Messrs. Davies and John, Ltd. ... ... | 0 | 10 | 6 |
| Messrs. Wilkinson and Dickinson ... ... ... | 0 | 10 | 6 |
| Mr. H. C. Broad... ... | 0 | 5 | 0 |
| Mr. H. Norris ... ... | 0 | 5 | 0 |
| Mr. J. L. S. Gordan ... | 0 | 10 | 0 |
| Mr. A. B. Hall ... ... | 0 | 5 | 0 |
| Mr. E. Loveless ... ... | 0 | 10 | 6 |
| Mr. H. W. Gedge ... | 0 | 10 | 6 |

| | £ | s. | d. |
|---|---|---|---|
| Mr. H. C. Gray ... ... | 0 | 10 | 6 |
| Mr. A. E. Mills ... ... | 0 | 10 | 6 |
| Mr. G. T. Kingston ... | 0 | 10 | 6 |
| Messrs. Pinch and Co. | 0 | 10 | 6 |
| Mr. R. H. Moore ... | 0 | 10 | 6 |
| Messrs. Hodders, Ltd., Staff ... ... ... ... | 0 | 12 | 6 |
| Messrs. Cater, Stoffell, and Forth, Ltd. ... | 0 | 10 | 6 |
| Dr. L. S. Clark ... ... | 1 | 1 | 0 |
| Warrington Division, B.M.A. (per Dr. J. A. Murray, Hon. Sec.). Result of Lecture at Padgate, organised by Dr. J. Bennett, Chairman of Division, Gas and Lantern provided by Mr. Hill ... ... ... | 10 | 7 | 6 |
| Dr. Arthur Whitfield (second donation, total £7 7s.) ... ... ... ... | 5 | 5 | 0 |
| Harrow Division, B.M.A. (per Dr. C. M. Pennefather, Hon. Sec.)— | | | |
| Dr. B. H. Barton ... | 0 | 10 | 6 |
| Dr. A. H. Bindloss ... | 1 | 1 | 0 |
| Mrs. Brady, M.B. ... | 0 | 10 | 6 |
| Dr. Andrew Brown ... | 0 | 10 | 6 |
| Dr. T. Compton ... ... | 1 | 1 | 0 |
| Dr. J. D. Cooke ... ... | 1 | 1 | 0 |
| Dr. W. S. Darby ... ... | 0 | 10 | 6 |
| Dr. J. Davidson ... ... | 0 | 10 | 6 |
| Dr. Godkin Downes ... | 1 | 1 | 0 |
| Lt.-Col. E. F. Broskman Drake ... ... ... | 0 | 10 | 6 |
| Dr. H. E. Dyson ... ... | 1 | 1 | 0 |
| Dr. Cavendish Fletcher | 1 | 1 | 0 |
| Dr. C. E. A. Goddard | 1 | 1 | 0 |
| Dr. H. R. Harley ... | 1 | 1 | 0 |
| Dr. H. J. Hildige ... | 0 | 10 | 6 |
| Dr. R. E. Humphry ... | 0 | 10 | 6 |
| Dr. M. O. Hunter ... | 0 | 10 | 6 |
| Dr. M. F. Huston ... | 0 | 10 | 6 |
| Dr. H. S. W. Jones ... | 1 | 1 | 0 |
| Dr. T. S. Kerr ... ... | 1 | 1 | 0 |
| Dr. S. H. A. Lambert | 1 | 1 | 0 |
| Dr. G. A. B. Levick ... | 2 | 2 | 0 |
| Dr. R. H. Martin ... | 1 | 1 | 0 |
| Dr. F. M. Matheson ... | 0 | 10 | 0 |
| Dr. H. Crichton Miller | 2 | 2 | 0 |
| Dr. T. T. O'Callaghan. | 1 | 1 | 0 |
| Dr. C. M. Pennefather | 1 | 1 | 0 |
| Dr. R. L. Romer ... ... | 0 | 10 | 0 |
| Dr. R. J. Stilwell ... | 1 | 1 | 0 |
| Professor G. D. Thane | 3 | 3 | 0 |
| Dr. W. D. Traill-Thompson ... ... ... | 1 | 1 | 0 |
| Dr. P. E. Walker ... ... | 0 | 10 | 6 |
| Dr. A. H. Williams ... | 1 | 1 | 0 |
| Dr. F. H. Woodroffe . | 0 | 10 | 6 |
| Dr. A. K. Baxter ... ... | 1 | 5 | 0 |
| Dr. Agatha Porter ... ... | 0 | 10 | 6 |
| Dr. C. Oldfield (per Dr. Barrs) ... ... ... ... | 5 | 5 | 0 |
| Dr. C. R. Benson ... ... | 1 | 1 | 0 |
| Mr. H. Secker Walker (per Dr. Barrs) ... ... | 3 | 3 | 0 |
| Barnsley Division, B. M. A. (per Dr. R. F. Castle) (second donation) ... ... ... ... | 7 | 7 | 0 |
| Dr. John Fawcett ... ... | 3 | 3 | 0 |
| Canadian Committee (per Dr. J. Gibb Wishart, Hon. Treas.) (fourth donation, total £908 5s. 3d.) ... ... ... | 400 | 0 | 0 |
| Rotherham Division, B.M.A. (per Dr. Knight, Hon. Sec.)— | | | |
| Dr. Anderson ... ... | 1 | 1 | 0 |
| Dr. Elliott ... ... ... | 1 | 1 | 0 |
| Dr. Jago ... ... ... | 1 | 1 | 0 |
| Dr. Knight ... ... ... | 1 | 1 | 0 |
| Dr. Lodge ... ... ... | 1 | 1 | 0 |
| Dr. Picken ... ... ... | 1 | 1 | 0 |
| Dr. Reid ... ... ... | 1 | 1 | 0 |
| Dr. Riddell ... ... ... | 1 | 1 | 0 |
| Dr. Kenny ... ... ... | 1 | 1 | 0 |
| Dr. Slack ... ... ... | 1 | 1 | 0 |
| Dr. Williams ... ... | 1 | 1 | 0 |
| Dr. Sedgwick ... ... | 1 | 1 | 0 |
| Dr. Collinson ... ... | 1 | 1 | 0 |
| Brussels Medical Graduates' Asso. (per Dr. Major Greenwood, Treas.) (seventh donation, total £126 14s. 6d.) | 2 | 2 | 0 |
| Anonymous from Dunedin (per Bank of New Zealand) (third donation, total £605) | 200 | 0 | 0 |
| Mr. S. T. Briggs ... ... | 0 | 5 | 0 |
| Mr. A. E. Grimwade ... | 1 | 1 | 0 |
| Miss A. McNicol ... ... | 0 | 10 | 0 |
| West Ham, East Ham, and Metropolitan Essex District Asso. of Pharmacists, Proceeds of Annual Dinner (per Mr. W. T. Johnson) ... | 7 | 7 | 0 |
| Western Pharmacists Asso., collected by (per Mr. W. E. D. Shirtliff) (second donation, total £125 14s.) ... | 5 | 14 | 0 |
| Norwich Pharmacists' Asso., collected by (per Mr. W. J. Lacey) (third donation)— | | | |
| Mr. H. E. Taylor ... | 1 | 1 | 0 |
| Mr. J. E. H. Watson ... | 0 | 13 | 0 |
| Birmingham Pharmaceutical Asso., collected by (per Mr. F. Smith) (sixth donation, total £128 12s.)— | | | |
| Mr. H. O. Lloyd ... | 1 | 1 | 0 |
| Manchester and District Subcommittee (per Dr. R. M. Brockbank, Hon. Sec.) ... ... | 574 | 5 | 7 |
| Dr. G. H. Pinder ... | 2 | 2 | 0 |

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd. £9700 had passed into the treasurer's hands by Tuesday last, the sum not including the Scottish and Irish Funds.

### THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge the receipt of surgical instruments kindly contributed by Mr. T. F. Blaker, of Brighton, and by Messrs. Claudius Ash, Sons, and Co., Broadstreet, W.C.

AT a meeting of the council of the Hampstead General and North-West London Hospital held last Wednesday Mr. Conrad W. Thies, who was present by invitation, received formal thanks for his voluntary help during the absence of the late secretary, Mr. A. E. Thomas, who was killed in the war, and pending the appointment of a successor. The council passed a resolution acknowledging the gratitude of the charity to Mr. Thies for his great assistance, and at the same time begged his acceptance of a gold watch, with suitable inscription, as a slight token of their appreciation of his services during their time of difficulty.

# The War.

## THE NEED FOR MEDICAL OFFICERS IN THE ARMY: A STATEMENT BY SIR ALFRED KEOGH.

AT a meeting of the Special Committee of Chairmen of Standing Committees of the British Medical Association, held on Thursday, April 1st, Mr. T. Jenner Verrall, chairman of Representative Meetings, presiding, Sir Alfred Keogh, Director-General of the Army Medical Service, was present upon invitation and made an important statement upon the need by the army of more medical officers.

The civil medical profession, he said, had given the army so much generous and self-sacrificing assistance since the outbreak of the war that he regretted to be compelled to make further demands on it. But it was necessary to look ahead and make adequate provision to safeguard the health of the home army when the Expeditionary Force was increased in strength to such an extent that every commissioned medical officer fit for active service would be required for service on the continent. It was anticipated that this increase would take place in the course of the next three or four months, so that the call on medical resources was urgent. Sir Alfred Keogh suggested the following means by which the civil practitioner could come to the aid of the army:—

*Whole-time Service.*

1. I would urge all those who are under 40 years of age and who are fit for active service to apply for temporary commissions in the R.A.M.C. if their civil obligations will allow them to do so. Such men would have an opportunity of seeing active service on the continent or elsewhere where we have fighting armies. We are especially in need of young general practitioners who are willing to go anywhere and do anything in the way of duty with troops or with medical units.

There are also vacancies for men who have specialised in surgery, bacteriology, medicine, X ray work, and ophthalmic surgery. They would probably eventually be appointed to the large hospitals of 1040 beds each which are being fitted out for service with the Expeditionary Force, but they would be required to do a certain amount of work in a military hospital in this country first, so as to familiarise them with the routine of a military hospital.

2. Men over 40 years of age are not being sent abroad at present, but their services would be of the greatest value to the military authorities in this country, and many of them would probably go overseas for hospital work later on.

*Part-time Service.*

So much for men who can offer themselves for whole-time and general service, and who are therefore eligible to receive temporary commissions. We now come to men who, on account of age or health, or local obligations, are unable to accept these larger responsibilities. I will divide these into three classes:—

1. Those who can give so many hours a day to military work and give a certain fixed time on each day. These men would be a great help in doing work in military hospitals, seeing men in combatant units reporting sick with minor ailments, and looking after the sanitation of camps, barracks, and billets.

2. Men who could not devote a specific time to military work, but who would be willing to attend

the wives and children of officers and soldiers as part of their general practice at good rates of pay.

3. Men who could arrange to help the neighbouring practitioners who have undertaken military duties, and who would do so without encroaching on their practices, and under terms which would have to be settled by mutual agreement.

It will be seen that every medical man in the country can "do his bit" to help the Government to bring this great war to a successful issue, and from our previous experience we can trust them to respond generously to the appeal we are now making to their patriotism.

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## A MOTOR OPERATION THEATRE.

A highly convenient operating theatre contrived within a motor wagon has been designed by Captain G. H. Colt, R.A.M.C., assistant surgeon to the Royal Infirmary, Aberdeen.

The chief points in connexion with this motor operation theatre are that it can be easily taken wherever it is required, that its dimensions are reasonable, that it can carry all its personnel, and that its price is not high. The chassis is of the commercial vehicle type, 20–30 h.p., the wheel base being 11 ft. 6 in.; the body is 9 ft. 6 in. long, 6 ft. 6 in. wide; the cab is 3 ft. 6 in. long, 6 ft. 6 in. wide; the height of both is 7 ft. over all, and the weight carried, including five persons, is about 2⅝ tons, suitably arranged as regards steering facilities. A clear space of at least 2 ft. 9 in., and more if required, is available as a stretcher-way.

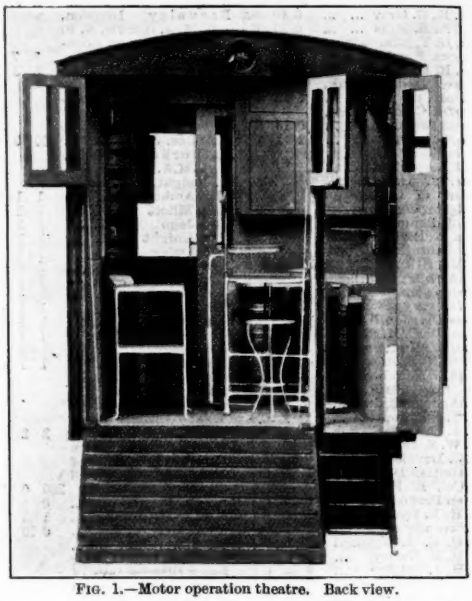

FIG. 1.—Motor operation theatre. Back view.

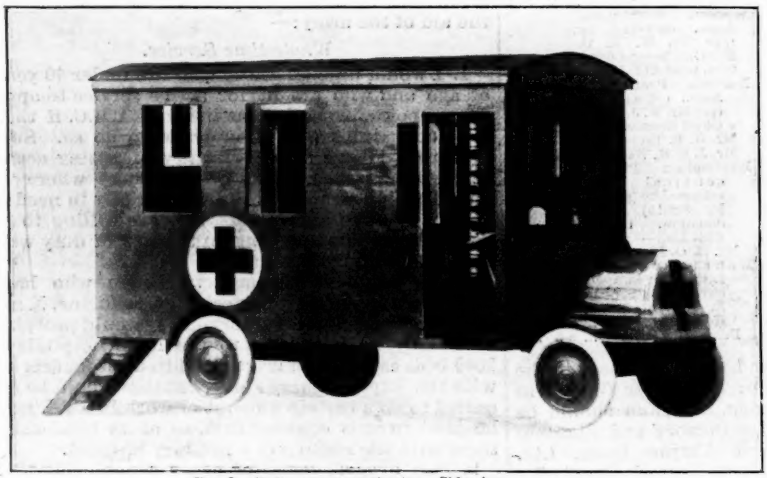

FIG. 2.—Motor operation theatre. Side view.

All boiling and sterilising and drying of washing is done in the cab (or partly outside the theatre) by paraffin burners. The cab is separated by a sliding door from the body of the theatre, thus eliminating phosgene gas, a most important point as regards the efficiency of the personnel. Cold sterile water is obtained in the body of the theatre either by tabloid hypochlorite in 15 minutes or by filling the four vessels from the boiler. The storage room is 34 cubic feet, providing for, say, 60 towels, 15 gowns, wool, gauze, bandages, and instruments. In addition a minimum of 16 full-sized drums, shelves, two drum stools containing plaster of Paris, and a trolley are provided. Seven cubic feet of space are available under the operation table if required. Two 20-gallon water-tanks are carried.

Electric light can be run for six hours off accumulators. A minimum time of 15 minutes is available for recharging off the engine between operations if required. Ventilation is by windows and an electric fan, causing

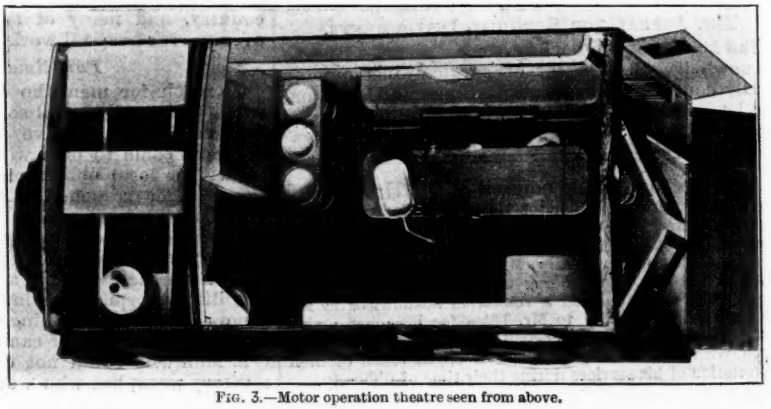

FIG. 3.—Motor operation theatre seen from above.

an indraught of filtered air. Closely fitting flanges to the windows keep out dust, and the tail board is arranged ingeniously so that the outer surface is always outside and dirt is not tipped into the theatre when it is closed up. The back of the car during travelling is covered by American cloth.

Washing, drying, and sterilising are provided for, and so long as supplies arrive regularly the theatre can be kept in constant use to serve casualty clearing stations and to deal with cases of grave abdominal injury, head cases, and large amputation or wound cases. It is not suggested that it should be used for any case that can be removed without risk of further complications ensuing or of pain and shock.

The cost of the theatre is £1100, the chassis costing £600, the body about £200, and the electrical fitting £70, leaving £230 for stores, fittings, and instruments, a sum which need not be spent or can be exceeded.

## MENTIONED IN DISPATCHES.

The following names have been added to the list of officers recommended for gallant and distinguished service in the field in the dispatch published in the *London Gazette* on Feb. 17th (see THE LANCET, Feb. 20th, p. 406): Major S. L. Cummins, M.D., R.A.M.C., Captain C. G. Browne, R.A.M.C., and Lieutenant (temp.) G. W. Milne, M.D., R.A.M.C.

In the same list, as previously published, the following corrections are notified with reference to the officers of the Royal Army Medical Corps: Lieutenant (temp.) J. B. Mathews should read Lieutenant (temp.) J. B. Matthews; Lieutenant R. B. Philippo should read Lieutenant R. B. Phillipps; and Lieutenant R. E. Pirrie, M.B. (killed in action), should read Lieutenant R. E. Porter, M.B. (killed in action).

## THE CASUALTY LIST.

Since our last issue the casualties reported in our Expeditionary Force include the names of Lieutenant E. Stratford, R.A.M.C., and Lieutenant A. N. Smith, R.A.M.C., both wounded.

## THE WATER-SUPPLY OF THE BELGIAN ARMY.

A representative of the Belgian Soldiers' Fund writes on the problem of the water-supply of the Belgian army. Owing to the floods the water, obliged to filter through land soaked in blood and strewn with dead, is in a dangerous condition. In a few weeks the fierce sun will be pouring its rays on a devastated country. A rapid advance of the allied troops is expected, when the forced marches may cause urgent thirst and the tired men, unable to resist the temptation, will drink at the roadside dyke. The terrible conditions that exist in Serbia are due mainly to lack of sanitary organisation in the earlier months of the war. Belgium has no lack of willing men, but does lack funds to place the necessary arrangements at the service of the army and the Government to keep a permanent supply of pure water always at hand till danger is passed. The Belgian Soldiers' Fund has acquired 100 portable 50-gallon boilers complete with pony and harness which are being delivered now, but what is that among so many? As the boilers take a week or two to manufacture the order must be given at the earliest possible date. The Belgian Soldiers' Fund deals entirely with providing food comforts, clothing, and pure water for the Belgian Army and for the widows, orphans, and families of their soldiers. All consignments are made direct to M. de Broqueville, Minister of War. Cheques should be made out to the "Belgian Soldiers' Fund" crossed on Lloyd's Bank and addressed to the Secretary, 17–19, James-street, Oxford-street, London, W.

## THE MEDICAL PLIGHT OF SERBIA.

The urgent appeal of Serbia for medical officers to attend the Serbian wounded, preferred through Sir Lomer Gouin, Premier of the Province of Quebec, by the Serbian Royal Legation in London, has resulted in the following Canadians volunteering:—

Dr. Albert Paling, Winnipeg; Dr. J. M. Casserly, St. Thomas, Ont.; Dr. W. J. McAllister, Calgary, Alberta; Dr. A. W. M. Leclair, Letellier, Man.; Dr. O. S. Waugh, Winnipeg; Dr. D. C. Hart, Kipling, Sask.; Dr. Arthur Macaan, Birtle, Man.; Dr. R. L. Hutton, Rosthern, Sask.; Dr. J. Hetherington, Carievale, Sask.; Dr. Thomas H. Smith, North Sydney, N.S.; Dr. James Peake, Winnipeg; Dr. W. A. Dymond, Winnipeg; Dr. Alex. Osmanley, Toronto; Dr. W. P. Mackasee, Springhill, N.S.; Dr. O. A. Cameron, Stratford, Ont.; Dr. A. H. Bowen, London, Ont.; Dr. D. E. Scott, London, Ont.; Dr. J. V. Brandon, Winnipeg; Dr. L. Zealand, Winnipeg; Dr. J. Baxter, Chatham, N.B.; Dr. G. Degrys, Abenakis Springs, Que.; Dr. Alfred Whitmore, Cabri, Sask.; Dr. V. Bourgeault, Marcelin, Sask.; Dr. P. E. Lavoie, Marcelin, Sask.; Dr. C. M. Keiller, London, Ont.; Dr. G. E. Duncan, Vernon, B.C.; Dr. M. F. Lucas, Dryden, Ont.; Dr. J. Murray, Winnipeg; Dr. P. A. Guay, South Shipshaw, Que.; Dr. E. E. Robrabough, Sanford, Man.; Dr. B. A. Hopkins, Blaine Lake, Sask.; and Dr. J. B. McKay, Kitscoty, Alberta.

Several nurses have also volunteered for the Serbian service.

The third and fourth units of the Serbian Relief Funds Hospitals left London on April 1st. The third unit, Mrs. St. Clair Stobart's Hospital, is staffed almost entirely by women. There are 16 nurses, 15 women orderlies, 7 women members of the medical and surgical staff, besides 6 male orderlies and the treasurer. Its destination is Salonica. The fourth unit, the British Farmers' Hospital, under the administration of Mr. L. M. Wynch, C.I.E., has a tent hospital to contain 300 beds, with baths, ice plant, and everything requisite for serum treatment. It has four medical men, a secretary, a matron, 18 nursing sisters, 13 female and 4 male orderlies, and a dispenser, and its destination is Skoplje, where there are said to be some 3000 cases of typhus fever.

## THE PRINCESS CHRISTIAN HOSPITAL TRAIN.

The Princess Christian Hospital Train is due entirely to the initiative and energy of Her Royal Highness, by whom also the necessary funds have been raised. It is the successor of the train which, under the same name, was sent to South Africa in 1899. Sir John Furley and Mr. William J. Fieldhouse, who designed the latter train, are responsible for the present one also. The difficulties in the present case were increased by the necessity for consulting different bodies. The War Office laid down that hospital trains should accommodate 400 patients; the French railway engineers required all questions relating to under-carriages, couplings, brakes, lighting, and so forth, to be submitted for their approval. A joint railway committee was accordingly formed of managers of the leading English railway companies and French railway engineers, with the result that the train as it stands now satisfies the requirements of the different authorities.

The arrangements of the train are as follows:—The first coach contains an office, with bed, fittings, desk, safe, &c., for the quartermaster-sergeant, partitioned off from a ward containing 30 beds. Coaches 2 and 3 have each

36 beds, with lavatory and lockers. Coach 4 has beds for 12 orderlies with two lockers and lavatory; a kitchen fully equipped and a 60 gallon hot-water tank, also store-room for linen. The first part of Coach 5 provides sleeping accommodation for the nurses, and nurses' and doctors' dining-rooms, also office and sleeping accommodation for the P.M.O. Then come the surgery and a sleeping room for doctors. Coaches 6 and 7 are similar to 2 and 3, and Coach 8 contains beds for 12 orderlies, a kit store, and a second kitchen. In accordance with the War Office desire, four other coaches, each for 50 sitting-up patients, have been added to the original eight, thus making with the engine and brake-van a train of 14 vehicles with a total length of about 700 feet. There is an ample supply of water throughout the train and gas and electric lighting, while in case of these failing Gimble candle lamps are placed in each carriage. The equipment of this train is ample and excellent, so that the train can, if necessary, be used as a stationary hospital on wheels.

THE FRENCH RED CROSS HOSPITAL AT ROYAUMONT.—Our own correspondent sends the following description of the military hospital at Royaumont:—"The Abbey of Royaumont dates from the thirteenth century, and has been occupied by religious communities from its foundation until some ten years ago. It is beautifully situated in the picturesque valley of the Oise in extensively wooded grounds. Its peacefulness renders it an ideal site for a military hospital. The abbey is built round three sides of a central court with cloisters, and two of these wings have been easily adapted to the needs of a modern hospital. On the ground floor are three medium-sized and two large wards, kitchen, lavatories, and bathroom. All have high-arched stone roofs; one, the ancient refectory, is oak-panelled, with windows facing south and west. New patients during their first days remark that on awaking from sleep they think they are in a church, so peaceful and so dignified are the arched roofs, stone walls and pillars, and the latticed glass of the tall windows. Two great staircases of oak lead to the first floor, where the ancient library of the monks, another stately hall, has been converted into a ward. Its windows look north and south; on one side the windows open on the terrace above the cloisters, where convalescents can lie in the sunshine. On the same floor in adjacent rooms are the X ray department, the dispensary, and the operating and sterilising rooms. On the same floor at a higher level are two long corridors with convenient bedrooms for the nurses and the medical and administrative staff; on the second floor are isolation chambers, storerooms, and bedrooms, and rooms for mending and sorting of clothes and arms. There is electric light throughout; hot water and anthracite stoves for heating have been inserted. Three motor ambulances fetch the wounded daily from the evacuatiou station at Creil. The first set of patients arrived about the middle of January; in March 161 entered; 106 were discharged. Shrapnel and bullet wounds form the majority of the cases which reach Royaumont, usually from 12 to 40 hours after being wounded. All wounds arrive with a clean, excellent first dressing, and the men have already received an injection of antitetanic serum. As a consequence, no cases of tetanus have been seen at Royaumont. The shrapnel wounds tend to become septic, and are treated at once with hydrogen peroxide and mercurial dressings. When examination by X rays reveals the presence of a foreign body it is localised by Hampson's method, and extraction is facilitated by the use of the telephone probe. Bullets embedded deeply in the muscles are rarely septic, and when left alone frequently give rise to so little trouble that their removal is unnecessary and inadvisable.

The military medical authorities have made a request to the chief surgeon at Royaumont that the number of beds be increased from the original 100 to 200—a request which is the more flattering, seeing that in January, when the hospital opened, it received no eager welcome and for some weeks had three-fourths of its beds unoccupied. Miss Ivens, M.B., M.S., is head surgeon; Miss Winifred Ross and Miss Ruth Nicholson act as assistant surgeons; Mrs. Berry and Miss Deborah Hancock as physicians; and the X ray and electrotherapeutic department is under the care of Dr. Agnes Savill. The hospital, whose official title is Hôpital Auxiliaire, No. 301, of Royaumont, Asnières sur Oise, is under that branch of the French Red Cross known as Secours aux Blessés Militaires."

CANADIAN BASE HOSPITALS.—The following is the staff for the base hospital contributed by the University of Toronto, which has been accepted by the War Office: Administrative staff: Lieutenant-Colonel James A. Roberts, F.R.C.S., commandant; Major William B. Hendry, second in command; and Captain M. J. L. Yellowlees. Surgical staff: Professor A. Primrose, Dr. F. N. G. Starr, Dr. Walter McKeown (of equal rank), Dr. E. S. Ryerson, Dr. Geo. E. Wilson, Dr. W. J. O. Malloch, Dr. R. Gaby, Dr. F. W. Watts, Dr. J. G. Gallie, Dr. H. Wookey, and in addition Dr. F. W. Marlow and Professor B. P. Watson. Medical staff: Dr. Andrew R. Gordon and Dr. Graham Chambers (of equal rank), Dr. D. McGillivray, Dr. Harold C. Parsons, Dr. D. King Smith, Dr. C. F. McVicar, Dr. Geo. F. Boyer, Dr. F. R. D. Hewitt, Dr. R. G. Armour, and Dr. J. H. McPhedran. Nose and throat: Dr. Gilbert Royce. Eye and ear: Dr. Wm. H. Lowrey. Genito-urinary: Dr. Robert Pearse. Sanitation: Professor John A. Amyot. Laboratory: Dr. Duncan Graham, Dr. N. C. Sharpe, Dr. A. A. Fletcher, and Dr. C. J. Imrie. Dental staff: Dr. George Dow. This staff has been selected from the various hospitals of Toronto; in addition some 80 nurses will also be selected.—The base hospital contributed by McGill University, which will be known as No. 3 McGill Hospital, and which also has been accepted by the War Office, will be under the command of the Dean of the Medical Department, Lieutenant-Colonel H. S. Birkett, with Lieutenant-Colonel H. B. Yates as second in command. The personnel was announced by our Canadian correspondent on March 20th.

THE FEEDING OF TROOPS IN THE FIELD.—Our Paris correspondent writes: Dr. Basset, inspector of provision factories in the 18th district, has pointed out that there is at present too exclusive an amount of flesh eating, for the French soldier refuses rice and makes but little use of bread. To remedy this state of things he suggests the preparation of four new forms of preserved foods, forming nutritious, hygienic, and agreeable dishes, the preparation of which is simple and practical. These dishes are a beef hash with vegetables, a *ragoût* of beef with vegetables, a *cassoulet* (a Languedoc dish of *haricots blancs* with pieces of goose, duck, mutton, or pork), and a mince of pork cooked in fat.

THE DEARTH OF MEDICAL OFFICERS.—A correspondent writes to us in reference to Sir Alfred Keogh's appeal, which appeared in THE LANCET of March 13th, to say that there are several reasons why medical men do not come forward. Among others he has heard the following: 1. Many now serving as combatants to fill up a niche, which they prefer, are willing to serve professionally from a sense of duty; naturally they will not accept a rank lower than their present one, and for this reason they are refused. 2. Medical men of many years' standing and in a good professional position very naturally object to be placed under men half their age and with no professional experience to speak of. 3. The offer of £8 8*s*. a week without any allowances is hardly attractive to a man, however patriotic he may be, who has to pay at least that amount per week to carry on his practice, in addition to the fact that his practice only earns about a quarter of what it should earn, and that his household and most of his professional expenses remain as before—the loss of most of his practice is hardly compensated for by a donation of £60 at the end of his service. A man who gives professional service is worth more than one who gives amateur service. The heads of the Royal Army Medical Corps do not know anything about private general practice, and cannot be expected to think of these things, but until they do it will be difficult to get men to come forward.

RE-EDUCATION OF CRIPPLED SOLDIERS.—The Colony for Cripples at Chailey, Sussex, has instituted military wards for convalescent soldiers where the men are taught various crafts in conformity with the disabilities imposed on them by their injuries. An appeal for special support was endorsed by the Bishop of London, who paid a surprise visit to the camp before going to the front for Easter. Things especially desired as gifts are a gramophone and records, a piano, bagatelle boards, a revolving shelter, books and magazines, and the loan of motor-cars. Communications may be addressed to Mrs. C. W. Kimmins, The Old Heritage, Chailey, Sussex.

HELP FOR THE HOSPITALS.—Lady Lawley, honorary secretary of the Queen Mary's Needlework Guild, has made a public announcement that with the approach of summer the necessity for woollen comforts no longer exists, nor for clothing for women and children; but owing to the duration of the war and the large number of casualties there is an increased demand for all necessaries and comforts for wounded and convalescent soldiers in the hospitals at home and abroad, for which several thousand more beds have to be equipped. Ladies are therefore requested to devote their energies to making for hospital use shirts, pyjamas, slippers, towels, bandages, nightshirts, dressing gowns, sheets, feather pillows, lint, together with socks, which are always useful.

CARDIFF MENTAL HOSPITAL.—The committee have agreed to hand over this hospital, situated at Whitchurch, to the War Office for use as a military hospital. The conditions, among other things, arrange that the Army Council is to make good expenditure or loss sustained. The War Office is to become responsible for the care and treatment, the hospital being handed over with its entire staff as a going concern. Any extra staff required will be appointed by the War Office. The scales of board and living for the staff are to be not less favourable to the staff than those at present obtaining. The medical superintendent will be the officer in charge under the direct control of the War Office. He will make contracts for supply and carry on the business side of the administration, opening a separate account and presenting his monthly accounts to the War Office through the Board of Control. The taking over of the hospital is to entail no expense whatever to the Cardiff ratepayers, and this includes the removal of patients to other mental hospitals and the charges made for their maintenance.

THE TRAINING OF WAR PROBATIONER NURSES.—The army appeal for nurses is meeting with a wide response. St. Bartholomew's Hospital, which has arranged a three months' course for war probationers, to fit them for service under fully qualified nurses in military hospitals, in accordance with the expressed desire of the Director-General of the Army Medical Service, as mentioned in our columns on April 3rd (p. 728), has received over 400 applications, of which not more than 40 could be accommodated. University College Hospital has also arranged for three and six months' courses for the same purpose.

READING AS A HOSPITAL CENTRE.—The War Office has taken over the Reading workhouse and several large elementary schools with the object of making Reading an important hospital centre. The transport service is to be organised entirely by the Berkshire Automobile Club, which will provide a staff of drivers.

DISINFECTANTS NEEDED FOR MONTENEGRO.—The prevalence of epidemics of typhus and typhoid fever in Montenegro has caused Sir Edward Grey to issue an appeal, through Sir J. Roper Parkington, for financial aid to supply the large quantities of disinfectants that will be required, the transit of which, it is believed, will be expedited by the Italian Government. Donations can be sent to the Duchess of Rutland, 16, Arlington-street, W., or to Lady Parkington, 58, Green-street, Park-lane, W.

THE Cross of Chevalier of the Order of Leopold has been conferred by the Belgian Government on Miss Beatrice Dormer Maunder, director of the Anglo-Belgian Hospital at Rouen, in recognition of her services since the outbreak of the war, first at Ostend and subsequently at Rouen.

THE Indian Field Ambulance working at Neuve Chapelle received the special commendation of Lieutenant-General Sir James Willcocks, commanding the Indian Army Corps in France.

BRISTOL ROYAL INFIRMARY.—At the annual meeting of the supporters of the Bristol Royal Infirmary on March 23rd Sir George White, the President, congratulated the governors on their prescience five years ago in placing the Royal Infirmary at the disposal of the nation to constitute the 2nd Southern Base Hospital for the sick and wounded in case of war. The report stated that at the end of 1914 no fewer than 1637 military patients had been admitted and a very large number of military out-patients treated, the committee having agreed with the War Office to undertake the feeding, cooking, provision of drugs and dressings, and laundry. In addition accommodation had also been found for many wives and families of soldiers coming from India and the colonies. Nevertheless, the treatment of civil patients had gone on as usual. Practically the whole of the honorary staff had been called up for military service, while of past and present sisters and nurses 103 were serving in military hospitals at home and abroad. Lieutenant-Colonel J. Paul Bush, C.M.G., R.A.M.C.(T.), expressed thanks on behalf of the War Office for the way in which the president and committee had responded to the calls made upon them.

# Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the First Professional Examination of the Conjoint Board, held on March 23rd, 24th, 25th, and 26th, the following candidates were approved in the undermentioned subjects:—

*Chemistry and Physics.*—John Griffith Barrie, Guy's Hospital; Lionel Moore Billingham, Cardiff; Kevin Robert Chapple, St. Bartholomew's Hospital; Benjamin Young Harper Christmas, Middlesex Hospital; Cyril Bernard Dix, Guy's Hospital; Theodore Henry Dobrashian, University College; John Edwin Hardie Duckworth, Guy's Hospital; William Collins Faull, St. Mary's Hospital; Edgar Francis Job Jones, Cardiff; Francis William Kemp, Charing Cross and King's College; Elizabeth O'Flynn, London School of Medicine for Women; Arthur Gordon Ord, Guy's Hospital; Mohammed Abbas Ragy, King's College; Joseph Hajee Sullaiman, Guy's Hospital; and Henry William Miles Williams, Cardiff.

*Chemistry.*—Frederick Thomas Allen, St. Thomas's Hospital; William Edward Barnes, University College; Alfred Foster, St. Bartholomew's Hospital; Wahba Girgis, St. Mary's Hospital; Denis Paul Guilfoyle, St. Bartholomew's Hospital; Tudor David Llewelyn, Cardiff; Eva Morton, London School of Medicine for Women; and George Foster Smith, Manchester University.

*Physics.*—Ina Valentine Vincent, London School of Medicine for Women and Polytechnic Institute.

*Biology.*—Abraham Abelson, D.Sc. Lond., D. ès L., University College; Frank Barker, King's College; William Edward Barnes, University College; Willie Beaumont, London Hospital; Lionel Moore Billingham, Cardiff; Frederica Mary Bradley and Anna Bridget Broman, London School of Medicine for Women; John Francis Edward Burns, Bristol University; Norman Edward Davies Cartledge, St. Bartholomew's Hospital; Marjorie Carnsew Chappel, London School of Medicine for Women; Kevin Robert Chapple, St. Bartholomew's Hospital; Benjamin Young Harper Christmas, Middlesex Hospital; Percival Charles Collyns, St. Bartholomew's Hospital; Ivor Joseph Corbett and Ignatius Joseph Cruchley, London Hospital; Theodore Henry Dobrashian, University College; Arthur Duffy and Frank Edward Edwards, Manchester University; Gwilym Pennant Evans and William Collins Faull, St. Mary's Hospital; Schalem Finkelstein, Zürich and King's College; John Eskdale Fishburn, Portsmouth Technical College; Sydney Hazeldine, B.A. Cantab., University College; Arthur Robert Hill, Middlesex Hospital; Thomas James, St. Bartholomew's Hospital; Edgar Francis Job Jones, Cardiff; Francis William Kemp, Charing Cross and King's College; John Kendall and Gerald Baeyertz Kirkland, Guy's Hospital; Paul Lindsey, St. Bartholomew's Hospital; Tudor David Llewelyn, Cardiff; Eva Morton, London School of Medicine for Women; Arthur Richard Neckles and Arthur Gordon Ord, Guy's Hospital; Frederick Ferdinand Petersen, London Hospital; Eleanor Margaret Reece, London School of Medicine for Women; Charles Edward Roach-Smith and Geoffrey Bathe Withers, London Hospital; Peter Erbin Williams, B.Sc. Wales, Cardiff; and Sidney Wolff, Guy's Hospital.

At the Second Professional Examination of the Conjoint Board, held on March 25th, 26th, and 29th, 53 candidates presented themselves, of whom 29 were approved and 24 were rejected. The following are the names of the successful candidates:—

Hector Demetrius Apergis and Ernest Horace Bryant, Guy's Hospital; Charles Herbert Carroll and *Joseph Clinton Collins, London Hospital; Eric Croft, New Zealand and London Hospital; Mangalanathan Dominick, Madras University; Nassry Gobran El-Gawly, St. Bartholomew's Hospital; Mikhail Elias, St. Mary's Hospital; Frank James Harrington and George Raymond Hubbard, Guy's Hospital; John Powell Jones Jenkins, University College, Cardiff; Florence Maltby Kerruish, Liverpool University; Richard Turner McRae, London Hospital; Walter Harry Maudling, King's College; Elizabeth O'Flynn, Edinburgh and London School of Medicine for Women; May Olivera, L.M.S. Bombay, Bombay University; Ahmed Othman, King's College; Aron Pastel, Paris and King's College; Edward Rowley Peirce, Birmingham University; William Irving FitzGerald Powell, London Hospital; Ronal Eric Rampling, St. Thomas's Hospital; Florence Mildred Rhodes, London School of Medicine for Women; Khurshedjee Jamsedjee Rustomjee, Liverpool University; George Ernest Spero and Howard Branston Troup, London

Hospital; Robert Hugh Turner, Bristol University; Hugh Pennefather Warren, London Hospital; Francis Eaton Gordon Watson, St. Bartholomew's Hospital; and Henry George Watters, London Hospital.

* This candidate having obtained the highest number of marks in Anatomy will be recommended to the Council of the Royal College of Surgeons for the Begley studentship.

## ROYAL COLLEGE OF SURGEONS OF ENGLAND.

At the Preliminary Science Examination for the Licence in Dental Surgery, held on March 23rd, 25th, and 26th, the following candidates were approved in the undermentioned subjects:—

*Chemistry and Physics.*—Harold John Allen, Middlesex Hospital; Malcolm Beverley Burton, Norwich Technical Institute; Cyril Dudley Melville Dorward, Guy's Hospital; Kenneth Wilfred Eady, Brighton Municipal Technical College; Augustus Ford, West Ham Municipal Technical Institute; Ivan Jephson Gardiner and Dudley Keverne Gaskill, Guy's Hospital; Frank Hiam, Royal Dental Hospital; Charles Harold Sterne Horwitz, Guy's Hospital; Francis Joslin Janch, Royal Dental Hospital; Ernest Wilfrid Jarvis, Guy's Hospital; Charles George Lingford, Royal Dental Hospital; Isidore David Marks, Birmingham University; Kenneth Marshall, Walsall Municipal Institute; Edgar Evan Holt Phillips, Birkbeck College; Ernest Henry Richards, Guy's Hospital; and Norman Victor Wadsworth, Birkbeck College.

*Chemistry.*—Clifford Baker, Birmingham Municipal Technical School; Ronald Francis Binns, Polytechnic Institute; Frederick George Pritchard Flanders and Stanley Godsill, Guy's Hospital; Norman Leigh Simpson, Cardiff; and Sydney Stamp, Royal Albert Memorial College, Exeter.

*Physics.*—Iorwerth Dulyn Davies, Birmingham University; Leslie Frank Fouraker, Guy's Hospital; Florence Goodman, Polytechnic Institute; John James, University College, Southampton; and Herbert Newton Tiplady, Leeds Technical School.

## UNIVERSITY OF LONDON.

At the Second Examination for medical degrees, for internal and external students, held recently, the following candidates were successful:—

*Part I., Organic and Applied Chemistry.*—Lena Cecilia Adam, London (Royal Free Hospital) School of Medicine for Women; Norman Dyer Ball, University College; Loveday Shackell Banes and Annie Hardy Banks, London (Royal Free Hospital) School of Medicine for Women; Monty Baranov and Henry Eric Beasley, University College; Levy Bernstein and Anthony Blackstock, King's College; John Douglas Magor Cardell, St. Thomas's Hospital; Wilfred Bayley Christopherson, St. Bartholomew's Hospital; Charles Eric Cobb, St. Thomas's Hospital; Humphrey Noel Felix Cook, University College; Anthony Beach Cowley, St. Bartholomew's Hospital; Joyce Emily Craggs and Nora Annie Crow, London (Royal Free Hospital) School of Medicine for Women; Evan Sherrah Davies, King's College; Idris Davies, University College, Cardiff; Mary Day, London (Royal Free Hospital) School of Medicine for Women; Francis Percival de Caux, St. Bartholomew's Hospital; Elizabeth Denniston, London (Royal Free Hospital) School of Medicine for Women; George Wilhelm Robert W. Dreiheller, St. Bartholomew's Hospital; Abraham Eidinow, London Hospital; Sylvia Victoria Elman, London (Royal Free Hospital) School of Medicine for Women; Frederick Augustus Evans, London Hospital; Donald Charles Fairbairn, St. Bartholomew's Hospital; Lilian Mabel Fisher, London (Royal Free Hospital) School of Medicine for Women; Gerald William Thomas Hunter Fleming, University of Durham; Abraham Foner, London Hospital; Wilfrid Frederick Francis, St. Mary's Hospital; Alfred Laurence Goff and Jacob Gorsky, King's College; *Walter Henry Grace, Guy's Hospital; Gwenvron Mary Griffiths, London (Royal Free Hospital) School of Medicine for Women; *Albert William Holgate, University College; Henry Nevill Hornibrook, St. Bartholomew's Hospital; John Francis Howells, University College; Marshall Jackson, St. Bartholomew's Hospital; Santo Weisberg Jeger, University College, Cardiff; Robert David Jones, University of Liverpool; Noel Edward Ffarnwell Kemm, University of Bristol; Vasant Ramji Khanolkar, University College; *Muriel Elsie Landau and Mary Kathleen Forsaith Lander, London (Royal Free Hospital) School of Medicine for Women; Charles Gordon Lewis, University of Birmingham; Simon Sally Liebermann and Ernest Kenneth Macdonald, St. Thomas's Hospital; *Janet McAllister McGill, London (Royal Free Hospital) School of Medicine for Women; Gerald Joseph Wyld McMichael, University of Birmingham; Vida Sara Maxwell, London (Royal Free Hospital) School of Medicine for Women; David Chaim Mintzman and Ludlow Murcott Moody, King's College; Edith Mary Ponsonby Morris, London (Royal Free Hospital) School of Medicine for Women; Edith Marjorie Newman, University College, Cardiff; John Ernest Nicole, King's College; Norah Dorothy O'Flyn, University College, Cardiff; Marguerite Henrietta Pam, London (Royal Free Hospital) School of Medicine for Women; Manek Jamshedji Panthaky, King's College; Rowland John Perkins, St. Bartholomew's Hospital; George Stuart Bain Philip, King's College and Charing Cross Hospital; Ruth Wade Plimsoll, London (Royal Free Hospital) School of Medicine for Women; Leonard Duncan Porteous, St. Bartholomew's Hospital; John Northley Julian Powlesland, Middlesex Hospital; Dorothy Priestley Priestley, Girton College and University of Leeds; Mary Millicent Prior, London (Royal Free Hospital) School of Medicine for Women; Ernest Frank Rabey, Middlesex Hospital; Ronald Seton Ralph, Guy's Hospital; Edward Douglas Thomas Roberts, St. Thomas's Hospital; Edward Snow Rose, St. Bartholomew's Hospital; Hugh Thornton Rymer, King's College; Solomon Nahum Senitzky, London Hospital; Bryan Buckley Sharp, St. Bartholomew's Hospital; Joseph Harold Sheldon, King's College; Arthur George Shurlock, Jesus College, Cambridge; William Henry Simmons, Guy's Hospital Bertram Leslie Slater, London Hospital; George John Sophianopoulos and Gilbert Patrick Staunton, St. Bartholomew's Hospital; Mary Sylvia Stocks, London (Royal Free Hospital) School of Medicine for Women; Harold Edward Suter, St. Mary's Hospital; Khiam Soon Tan, University College; Stanley Roy Tattersall, St. Thomas's Hospital; John Alan Tennyson-Smith, Dulwich College; Cyril James Thomas, St. Thomas's Hospital; Howard Metherell Toop, London Hospital; Robert Lawrence Walker, St. Mary's Hospital; Austin Darley Wall, St. Bartholomew's Hospital; Hygeia Leigh Josephine Wallace, London (Royal Free Hospital) School of Medicine for Women; Arthur Elston Ward, St. Thomas's Hospital; Robert Walter Warrick, Guy's Hospital and Finsbury Technical College; and Eugene Wolff, University College.

* Awarded a mark of distinction.

*Part II.*—Gustave Adler, London Hospital; George Eric Archer, Victoria University of Manchester; Eric Miles Atkinson, St. Bartholomew's Hospital; Roy Douglas Aylward, London Hospital; Kenneth Norman Grierson Bailey, St. Bartholomew's Hospital; James Reid Banks, University College; Claude Wells Woolloton Baxter and Eric Biddle, Guy's Hospital; Harold John Blampied, St. Thomas's Hospital; Israel Braun, St. Bartholomew's Hospital; Duncan Gillard Churcher and †Wilfrid Edward Le Gros Clark, St. Thomas's Hospital; Apollo John Cokkinis and Joseph Monlas Courtney, St. Mary's Hospital; Thomas Morley Cunnington, University College; George Vincent Davies, St. Mary's Hospital; Simon Cyril de Silva Wijeyeratne, University College; Howard Lexster Douglas, London Hospital; Monte Edwards, St. Thomas's Hospital; Grace Hamilton Ewart, London (Royal Free Hospital) School of Medicine for Women; William Feldman, University College; Douglas Hugh Aird Galbraith, Guy's Hospital; Maximilian Walter Geffen, University College; †Dorothy Gilford, London (Royal Free Hospital) School of Medicine for Women; Ernest Howard Glenny, St. Bartholomew's Hospital; ‡Henry Gluckman, London Hospital; Eryl Glynne, London (Royal Free Hospital) School of Medicine for Women; Alexander Fitzgerald Grattan Guinness, Guy's Hospital; Hubert Oliver Gunewardene, King's College; Joan Hardy, London (Royal Free Hospital) School of Medicine for Women; Thomas Lothian Heath, Guy's Hospital; Kenneth Reed Hill, University College; Bertha Hinde, London (Royal Free Hospital) School of Medicine for Women; Eric Clark Hinde and Valentine Robert Hirsch, Guy's Hospital; Theodora Johnston, London (Royal Free Hospital) School of Medicine for Women; John Isaïe Kühne, King's College and Charing Cross Hospital; Felix Raoul Leblanc, Guy's Hospital; Emily Catherine Lewis and Ethel Marion McCartney, London (Royal Free Hospital) School of Medicine for Women; Bruce Maclean, Puthiyaveettil Narayana Menon, and Martin Herbert, Oldershaw, University College; Alexander Edward Patrick Parker, King's College and Westminster Hospital; Irene Grace Parsons, London (Royal Free Hospital) School of Medicine for Women; Arthur Edmund Beer Paul, University College; Edwin Seymour Phillips, Guy's Hospital; Frank Portas, King's College and Westminster Hospital; Sybil Madeline Georgina Pratt, London (Royal Free Hospital) School of Medicine for Women; Henry Norman Pritchett, Guy's Hospital; Hywel Tegid Prys-Jones, University College, Cardiff; Mariamme Olive Ramsay, B.Sc., Joyce Baron Reed, Frances Elinor Rendel, Olive Rendel, and Gwendolen Mary Rolfe, London (Royal Free Hospital) School of Medicine for Women; James Paterson Ross, St. Bartholomew's Hospital; Henry Bret Russell, St. Thomas's Hospital; Eleanor May Scarborough, London (Royal Free Hospital) School of Medicine for Women; Simeon Cyril Shaw, Middlesex Hospital; Raghunath Dadoba Shirvalkar, University College; Arthur Anton Thiel, St. Bartholomew's Hospital; Benjamin Thomas, St. Mary's Hospital; Daniel Jenkin Thomas, B.Sc., and John Herbert Thomas, University College; George Edwin Tilsley, University of Bristol; Charles Maitland Titterton, St. Bartholomew's Hospital; Sydney Arthur Thomas Ware, St. Thomas's Hospital; Frederick William Arbuthnot Watt, London Hospital; Ralph Edwin Stuart Webb, Middlesex Hospital; Arthur William Wells, London Hospital; and John Prichard Williams, University College, Cardiff.

† Distinguished in Anatomy. ‡ Distinguished in Pharmacology.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

## VICTORIA UNIVERSITY OF MANCHESTER.

At examinations held in March the following candidates were successful:—

### FIRST M.B. AND CH.B. EXAMINATION.

*Part I., Inorganic Chemistry and Physics.*—Mary E. Boullen, G. H Buckley, T. H. S. Bullough, T. E. Coope, George Cumming, E. B. A. Edelston, F. C. Jones, Simon Kelly, James Leather, W. E. Mason, P. B. Mumford, E. R. Ormerod, Efimé Ratner, J. S. Robinson, Harry Stafford, Doris M. R. Tompkin, and Ruth A. Wilson.

*Part II., Biology.*—Nooman Abdoh, May Ashburner, Mary E. Boullen, G. H. Buckley, T. H. S. Bullough, T. E. Coope, George Cumming, Kathleen Doyle, Georgiana M. Duthie, E. B. A. Edelston, Olive M. Gimson, F. G. Hamnett, Archibald Harris, F. C. Jones, Simon Kelly, James Leather, J. A. Marriott, W. E. Mason, P. B. Mumford, J. G. Nolan, E. R. Ormerod, William Reikan, J. S. Robinson, A. H. Sadek, Harry Stafford, Doris M. R. Tompkin, and Ruth A. Wilson.

*Chemistry.*—Elizabeth C. Davies and J. G. Nolan.

### FIRST EXAMINATION FOR BACHELORSHIP IN DENTAL SURGERY.

*Physics and Zoology.*—E. L. Morgan.

### DIPLOMA IN DENTISTRY (FIRST EXAMINATION).

C. C. Breakell, S. K. Gibson, J. C. Knowles, E. B. Manley, and Harold Walmsley.

*Chemistry.*—Bertram Wilkinson.

*Physics.*—D. M. Barnes, Norman Flitcroft, A. N. Place, and Matthew Raeside.

UNIVERSITY OF GLASGOW.—The following candidates have passed the examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated—B., botany; Z., zoology; P., physics; C., chemistry:—

John Smith Aitken (Z.), Robert Caldwell Allan (Z.), Carl Otto Anderson, M.A. (B., P.), John Lang Anderson, M.A. (Z.), James Baird (Z., C.), Adam Barr (C.), Alexander Kidd Begg (Z., C.), Alexander Shanks Bisset (P.), Alexander Ronald Black (Z., C.), John William Stewart Blacklock (Z., C.), Donald Cameron Bowie (C.), Alexander Davie Boyd (Z.), Alexander Lothian Brough (Z., C.), Archibald Donald Brown (Z.), Murdoch Brown (Z., C.), James Caddies (Z., C.), Alister Campbell (Z., C.), Donald Stewart Campbell (B., Z.), James Gibson Campbell (Z., C.), Lovat Fraser Capell (Z., C.), John Parker Chisholm (P.), Booth Frederick Clarke (B., P.), Horace Collingbourne (B.), John Gilchrist Coltart (Z., C.), Alexander Conner Connell (Z., C.), George Michael Cooper (Z., C.), James Livingstone Cowan (Z., C.), Archibald Joseph Cronin (Z., C.), Edward Mitchell Erskine Cumming (B., P.), Douglas Roy Ferguson Davidson (Z.), John Campbell Dow (P.), John Grahame Drew (Z., C.), Peter Alexander Faichney (Z., C.), Robert Fletcher, M.A. (Z., C.), Colin Macphail Forbes (Z., C.), Robert Adam Forsyth (Z., C.), Allan Donald Fraser (C.), William Armour Galbraith (Z., C.), Matthew Forsyth Gibson (Z., C.), William Gibson (Z., C.), Francis Denis Gillespie (Z., C.), Joseph Drysdale Glaister (Z., C.), Adam Smith Goudie, M.A. (P.), John Crawford Grant (Z., C.), John Forrest Hamilton (Z., C.), William Mason Hamilton (Z., C.), William Harrison (Z., C.), John Hewitt (Z., C.), Robert Gold Howat (Z., C.), David Imrie (Z., C.), John Edward Jeffrey (Z., C.), Andrew Yuill Pollok Johnston (Z., C.), Ian Gordon Kennedy (Z., C.), Robert Kennedy (Z., C.), William Milroy Kennedy (Z., C.), John Kirk, M.A., B.Sc. (Z., C.), Alexander Adam Kirkland (Z.), William Malcolm Knox (Z.), James Burnett Lawson (Z.), John Leishman, M.A. (Z., C.), Barnett Levine (Z., C.), Douglas Marshall Lindsay (Z.), David Logan (Z., C.), George Alexander Lowe (Z., C.), Duncan MacColl (B., P.), Robert M'Courtney (Z.), Patrick Joseph M'Cusker (Z., P.), Andrew Buchanan Macdonald (C.), John MacColl MacDougall (Z., C.), Frederick M'Elwee (Z., C.), William Douglas Macfarlane (Z., C.), Robert M'Intosh M'Kean (B., Z., P.), William M'Kendrick (Z.), Kenneth Mackenzie (Z., C.), Alexander Henderson M'Lean (Z.), Angus Maclean (P.), Neil Alexander MacLean (Z., C.), William Henry M'Leish (Z., P.), Joseph Patrick M'Millan (Z., C.), Peter MacMurray (Z., C.), Alexander M'Callum Macqueen (Z., C.), Robert Mair (Z., C.), James Matheson (B.), John MacKean Maxton (Z., C.), Hugh Robertson Melville (B., P.), Modiri Silas Molema (Z., C.), James Bennie Morrison (C.), George Nelson (Z.), John Nicolson, M.A. (C.), John Stewart Nisbet (Z., C.), John Alexander Ramsay Oswald (Z., C.), Gilbert Paterson (Z., C.), James Paterson (Z.), William John Payne (Z., C.), John Pollock (Z., C.), Thomas Poole (C.), Rahmat Ullah Qureshi (Z., P.), Peter Crawford Rankin (Z., C.), David Reid (Z., C.), Andrew Morton Robertson (Z., C.), Henry Alexander Ross (Z., C.), Archibald Morton Sanders (Z., C.), John Kennedy Scotland (Z.), Thomas Sommerville (Z., C.), Donald M'Dougall Sproull (Z., C.), Horatio Walter James Steen (B., Z., C.), John Stevenson (B., P.), Robert Miller Stevenson (B., Z.), William Howie Stevenson (Z., C.), Andrew Sneddon Bennie Stewart (Z., C.), Noel Eustace Stone (Z., C.), Alexander Strang (Z., C.), Hugh Sutherland (Z., C.), William Crookenden Taylor (B.), William Robert Paton Templeton (Z.), Ernest John Tytler Thompson (Z.), John Todd (B., Z., C.), John Leonard Turpie (Z., C.), John Walker Walker (Z., C.), William Burns Wallace (Z.), James Alexander Walls (B., Z.), Richard Jackson Watson (Z., C.), John Cunningham Watt (Z.,), Robert Kennedy Watt (Z., C.), John Whitelaw, M.A. (Z. C.), Andrew Wilson (Z., C.), Robert MacLaren Wilson (B., P.), and Stephen Young (B., Z., P., C.)

*Women.*—Christine Calder Abernethy (Z., C.), Helen Frances Allinson (B., Z., C.), Ellen Davidson Anderson (Z., C.), Grace Hay-Anderson (Z., C.), Elizabeth Pace Cameron (Z., C.), Helen Clacher Cameron (Z., C.), Edith Chalmers (Z.), Mary Turner Liddell Clark (Z., C.), Emily Loudon Clow (Z., C.), Veronica Catherine Jessie Davies (Z., C.), Charlotte Ann Douglas (Z.), Helen Hogg (Z.), Marion Pitcairn Hogg (Z., C.), Elizabeth Smith Inglis (Z., C.), Margaret Logan (Z., C.), Alice M'Elwee (Z., C.), Alice M'Glashan (Z., C.), Evelyn Christina M'Donald M'Gregor (Z., C.), Ellen Thomson Mackenzie (Z., C.), Annie Isabel Christian Maclardy (Z.), Margaret Elizabeth M'Laren (Z., C.), Mabel Mary Maclean (Z., C.), Caroline Jane Maclennan (Z.), Muriel Mary M'Walter (Z.), Agnes Hislop Macwhirter (Z.), Florence Frances Mitchell Milne (P.), Georgina Murdoch (Z., C.), Kathleen Nicol (B.), Margaret Mitchell Paterson (Z.), Louisa Evelyn Pigeon (Z., C.), Margaret Innes Prangnell (P.), Eliza Dorothea Sandison (Z., C.), Elaine Bessie Stuart Stocquart (Z., C.), Muriel Amy Stowe (Z.), Jean Banks Thomson (Z.), Marion Thomson (B., Z., P., C.), Lilian Jane Taylor White (Z., C.), and Helen Barr Wilson (Z., C.).

The following have passed the examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated—A., anatomy; P., physiology; M., materia medica and therapeutics:—

John Alston (M.), Alexander Basil Austin (P.), Alexander George Brand (M.), William Moore Cameron, M.A. (A., P.), John Williamson Dalglish (M.), James Ferguson Duthie (M.), Kenneth Henry Dyke (A., P.), James Ewing (M.), Thomas Fleming (A.), Thomas Ronald Fulton (M.), Kenneth John Alexander Gillanders (A.), John Gray Gilmour (A.), William Hadden Gordon, M.A. (M.), Eduardo Guillermo Sanchez Hall (A., P.), Frederick William Hebblethwaite (A., P.), George Mundell Hetherington (M.), Arthur Robert Hill (M.), Tom John Honeyman (P., M.), James Neil Jamieson, M.A. (A., P.), Oswald Johnston (A., P.), Peter Stewart Kinloch (M.), William Fulton Kivlichan, M.A. (A.), Andrew Brown M'Aulay Lang, M.A. (A., P., M.), George Lean, B.Sc. (A., P.), James Liddell (A., P.), Frederick Richard Lubovius (A., P.), William Wilson Lundie (A., P.), Arthur Daniel Clark M'Gowan (P., M.), Alexander M'Cheyne Macintosh (A., P.), John Ebenezer MacIntyre (A., P.), Donald William Morison MacKenzie (A., P.), Neil Mackillop (M.), Robert Hugh M'Killop (A.), Donald Macqueen (A., P.), William M'William (A., P.), William Duff Miller (A., P.), George Anderson Mitchell (A., P.), James Moffat (P.), William Harold Palmer (M.), James Walker Patterson (A., P.), Samuel Murdoch Riddick (A., P.), Ian Menteith Robertson (A., P.), John Llewelyn Rowlands (P.), Alexander Benham Stich, B.Sc. (A., P.), Thomas Stewart Stirling (A., P.), James Joseph Treanor (A., P.), James Livingstone Walker (A.), Robert Nisbet Walker, M.A. (M.), John Allan White (A.), Kenneth John Talbot Wilson (M.), William Alexander Wilson (M.), and Robert Young (M.).

*Women.*—Janetta Margaret Alexander (M.), Annetta Gillies Turnbull Anderson (A., P.), Mabel Nellie Blake (A., P.), Margaret O'Rourke Gallagher (P.), Mary Brown Gillespie (A., P.), Margaret Hutchison Glen (M.), May Constance Boughton Leigh (A.), Margaret Jane Thorburn Leitch (M.), Elizabeth Clark M'Haffie, M.A. (A.), May Elizabeth MacIver (M.), Alice Julia Marshall (M.), Mercedes Margaret Morton (A.), May Isabella Turner Reid (M.), and Marion Watson (M.).

The following have passed the examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated—P., pathology; M., medical jurisprudence and public health:—

William Dick Allan (M.), John Alston (P.), William Baird (M.), James Beveridge (P., M.), James Prowse Broom (P.), Duncan Cameron (M.), Joseph Chalmers (M.), Douglas Hamilton Coats (P.), Alexander Findlay Cook (M.), Archibald Shankland Cook (M.), James Crerar (P.), John Norman Cruickshank (M.), John Freeland Cunningham, M.A. (P.), John Williamson Dalglish (P.), Andrew Davidson (P., M.), George del Pino (P.), Michael Devers (P.), Alexander Dick (P.), John Dunbar (M.), James Ferguson Duthie (P.), James Ewing (P.), James Brown Fisher (P., M.), Matthew Mair Frew (M.), Leonard Woodburn Gemmell (P., M.), William Hamilton Gibson (P., M.), Norman William Gilchrist (P.), Thomas Gray (P.), David Heard (P.), Arthur Robert Hill (P.), Theodore Paton Hutchison (P.), James Scott Kinross (M.), George Kirkhope (M.), Robert Lindsay, M.A. (M.), Frederick Colquhoun Logan (P.), Donald John MacDougall (P., M.), James Wallace Macfarlane (M.), Gerald James M'Gorty (P.), Joseph Patrick M'Grechin (P., M.), John MacInnes (M.), Neil MacKillop (P.), Keith Stuart Macky (M.), Duncan M'Laren (P., M.), John Wilson Maclean (P.), Frederick Robertson Martin (P.), William Watson Morrison (P.), Alexander Morton (M.), John Hughes Murray (P.), William Harold Palmer (P.), James Alexander Paterson (P.), Thomas Smith Paterson (P.), William James Poole (P.), Thomas Joseph Desmond Quigley (P., M.), Alexander Wilkie Ritchie (M.), David Bell Robertson (M.), Thomas Robertson Sinclair (M.), William Mitchell Stewart (M.), John Lawrence Torley (M.), Robert Nisbet Walker, M.A. (P.), Robert Smellie Weir (P.), Clive Alan Whittingham (P., M.), and Kenneth John Talbot Wilson (P.).

*Women.*—Janetta Margaret Alexander (P.), Christina Blair Buchanan (M.), Maud Christine Cairney (M.), Ann Kelly Cormack (P.), Jane Beattie Davidson (M.), Jessie Crawford Gilchrist (M.), Florence Scott Kirk (P., M.), Margaret Jane Thorburn Leitch (P.), Elizabeth Stewart Martin (M.), Helen Young Murdoch, M.A. (M.), Mary Ishbel Sinclair (P.), Jane Stalker (M.), and Marion Baillie Darling Wilson (M.).

At the recent professional examinations for the degrees of M.B. and Ch.B. the following candidates passed with distinction in the subjects indicated:—

In (*a*) Zoology and (*b*) Chemistry—John E. Jeffrey. In Zoology—John W. S. Blacklock, Archibald D. Brown, John Hewitt, Robert G. Howat, Andrew S. B. Stewart, Ernest J. T. Thompson, Mary T. L. Clark, Charlotte A. Douglas, Margaret Logan, Evelyn C. M. M'Gregor, Caroline J. Maclennan, Georgina Murdoch, and Muriel A. Stowe. In Physics—Edward M. E. Cumming. In Chemistry—Gilbert Paterson, William J. Payne, and John Pollock. In Physiology—Alexander B. Stitch. In Materia Medica and Therapeutics—Margaret H. Glen. In Pathology—Frederick C. Logan and Clive A. Whittingham. In Medicine—William E. Boyd. In Surgery—Alfred T. Logan. In Midwifery—Hugh B. Lawrie.

UNIVERSITY OF ABERDEEN.—At the graduation ceremony on March 30th the following degrees, among others, were conferred:—

*Doctor of Medicine.*—Sebastian Valentyn Van Niekerk, Edward Wood Wood-Mason (old regulations), Thomas Charles McCombie Young, and Robert Semple.

*Bachelor of Medicine and Bachelor of Surgery.*—William Anderson, Elizabeth Grace Berneaud, Douglas Wales Berry, Ronald John Bruce, Patrick Thomas Catto, Austin Basil Clarke, Reginald Tom Cox, Douglas Cran, Alfred George Brown Duncan (second-class honours), George William Elder, Alexander Farquhar, Robert Forgan, John Alexander Innes, John William Innes, William Hunter Kay, William Leslie, Herbert John Adam Longmore, John Moir MacKenzie, John Moir, Robert Munro, Robert Boulton Myles, Eric Newton, Cameron Macdonald Nicol, Forster Heddle Brown Norrie, Gilbert Wolridge Rose, Colin George Shearer, and William Joseph Webster.

*Diploma in Public Health.*—John McGregor Hartley Reid and Benjamin Theodore Saunders.

THE Chelsea Hospital for Women has received from the trustees of the Zunz bequest £500 for the maintenance of the Annie Zunz Ward.

A CENTENARIAN.—Mr. William Perkins, of Shepau Stow, Lincolnshire, has just celebrated his 103rd birthday.

# Appointments.

*Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to* THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BENNETT, F. D., M.R.C.S., has been appointed Temporary Honorary Assistant Surgeon to the Royal Eye Hospital, Southwark.

FOULERTON, A. G. R., F.R.C.S. Eng., D.P.H. Camb., has been appointed Lecturer in Public Health at the London School of Medicine for Women.

FRASER, ROBERT, M.B., Ch.B. Edin., has been appointed Medical Officer of Health for Chesterfield.

GAMGEE, LEONARD P., F.R.C.S. Eng., has been appointed Honorary Surgeon to the Birmingham General Hospital.

HUNTER, J. W. M., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Ruddington District of the county of Nottingham.

LETCHWORTH, T. W., M.B., B.Ch. Cantab., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Temporary Honorary Assistant Surgeon to the Royal Eye Hospital, Southwark.

LOOSELY, A. E. A., M.B., B.Ch. Oxon., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Temporary Honorary Assistant Surgeon to the Royal Eye Hospital, Southwark.

MILLS, G. P., M.B., B.S. Lond., has been appointed Assistant Surgeon to the Birmingham General Hospital.

MOSS, F. W., M.B., C.M. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Carnforth District of the county of Lancaster.

MURRAY, J. J., M.B., B.Ch. Belf., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Downpatrick District of the county of Down.

NIVEN, A. S., M.D. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Turriff District of the county of Aberdeen.

SAMPSON, H. H., M.B., Ch.B. Birm., has been appointed Assistant Surgeon to the Birmingham General Hospital.

SHARPE, F. A., M.B., B.S., D.P.H. Leeds, has been appointed Medical Officer of Health for Barnsley.

VERMYLEN, JOSEPH (Louvain), has been appointed House Surgeon to the North Devon Infirmary, Barnstaple.

WHARTON, JOHN, M.D. Cantab., has been appointed one of the Medical Referees under the Workmen's Compensation Act for County Court Circuit No. 8 and for the Salford County Court Circuit No. 7 for Ophthalmic cases.

# Vacancies.

*For further information regarding each vacancy reference should be made to the advertisement (see Index).*

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £150 per annum, with residence, board, and laundry.

BATH, ROYAL UNITED HOSPITAL.—Resident Medical Officer.

BENENDEN, KENT, NATIONAL SANATORIUM.—Locum Tenens Medical Superintendent. Salary 5 guineas weekly, with board and laundry. Also Assistant Medical Officer. Salary £120 per annum, with board and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board and laundry. Also Junior House Surgeon. Salary £100 per annum, with board and laundry.

BIRMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL, Edmund-street.—House Surgeon for six months. Salary at rate of £100 per annum, with board, lodging, and washing.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £250 per annum, with apartments, attendance, &c.

BIRMINGHAM, YARDLEY ROAD SANATORIUM AND THE ANTI-TUBERCULOSIS CENTRE.—Third Assistant Medical Officer. Salary £200 per annum, with board and residence.

BLACKBURN UNION WORKHOUSE.—Resident Medical Officer, unmarried. Salary £350 per annum, with apartments, rations, washing, and attendance.

BOOTLE BOROUGH HOSPITAL.—Senior and Junior House Surgeons. Salary £150 and £130 per annum respectively, with residence, board, and laundry.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £125 per annum, with board, lodging, and washing.

BRISTOL GENERAL HOSPITAL.—Second House Physician, House Surgeon, and Casualty House Surgeon, also Resident Obstetric Officer, for six months. Salary at rate of £150 per annum, with board, residence, &c.

BRISTOL ROYAL INFIRMARY.—Three House Surgeons. Two House Physicians, and One Obstetric and Ophthalmic House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.

BRISTOL UNIVERSITY.—Demonstrator in Anatomy. Salary £180 per annum.

BURY INFIRMARY.—Senior House Surgeon and Junior House Surgeon. Salary £175 and £150 per annum respectively, with board, residence, and washing.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Physician for six months. Salary £100 per annum, with apartments, board, and laundry.

CAMBERWELL, PARISH OF.—Temporary Assistant Medical Officer for Infirmary, Brunswick-square, Camberwell, Gordon-road Institution, Peckham, and Scattered Homes. Salary at rate of £500 per annum, with apartments, board, and washing.

CANTERBURY, CHARTHAM ASYLUM.—Locum Tenens Assistant Medical Officer. Salary £7 7s. per week, with board, lodging, and washing.

CANTERBURY MENTAL HOSPITAL.—Assistant Medical Officer unmarried. Salary £250 per annum, with board, lodging, washing, and attendance.

CARLISLE, CUMBERLAND AND WESTMORLAND ASYLUM, Garlands.—Junior Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, and washing.

CARLISLE NON-PROVIDENT DISPENSARY.—Resident Medical Officer. Salary £200 per annum, with apartments (not board).

CARMARTHEN, JOINT COUNTIES ASYLUM.—Temporary Second Assistant Medical Officer. Salary at rate of £200 per annum, with board, lodging, washing, &c.

CARSHALTON, SURREY, QUEEN MARY'S HOSPITAL FOR CHILDREN.—Assistant Medical Officers. Salary at rate of 6 guineas per week, with board, lodging, and washing.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House Surgeon and Second House Surgeon. Salary £200 and £150 per annum respectively, with board, apartments, and laundry.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Tuberculosis Officer. Salary at rate of £100 per annum, with lunch and dinner. Also Gentleman to supply the place of Members of the Out-patient Staff of Physicians who are on service in H.M. Forces. Also House Physician for six months. Salary at rate of £75 per annum, with board, residence, and washing.

DERBY, DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Female Resident Medical Officer for six months. Salary £200 per annum.

DORSET COUNTY COUNCIL.—Temporary Assistant Medical Officer of Health. Salary at rate of £300 per annum.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £150 per annum, with board, residence, attendance, and washing.

EDINBURGH, ROYAL EDINBURGH ASYLUM, Morningside.—Assistant Medical Officer. Salary £175 per annum, with board, rooms, &c.

FLINTSHIRE EDUCATION COMMITTEE.—Temporary Assistant Medical Officer for six months. Salary 5 guineas per week.

HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.

HAMMERSMITH INFIRMARY AND WORKHOUSE, Ducane-road, Wormwood Scrubs, W.—First Assistant Medical Officer. Salary £220 per annum, with board, lodging, washing, and attendance.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Resident House Surgeon and Resident Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry. Also Resident House Surgeon. Salary £100 per annum, with board and laundry.

LANCASHIRE COUNTY COUNCIL, ELSWICK SANATORIUM, near Kirkham.—Medical Superintendent. Salary £300 per annum, with board, apartments, and washing.

LANCASTER ROYAL INFIRMARY.—House Surgeon or Locum.

LEEDS GENERAL INFIRMARY.—Ophthalmic House Surgeon for six months. Salary £50 per annum, with board, residence, and laundry. Also Resident Medical Officer for six months at Ida and Robert Arthington Hospitals. Salary £60 per annum, with board, residence, and laundry.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—House Physician and House Surgeon for six months. Salary at rate of £100 per annum each, with board, residence, and laundry.

MANCHESTER CHILDREN'S HOSPITAL, Gartside-street.—Assistant Medical Officer for Out-patient Department for six months. Salary £100 per annum.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer, unmarried, for six months. Salary at rate of £100 per annum.

MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.

MANCHESTER EDUCATION COMMITTEE.—Female Assistant School Medical Officer, unmarried. Salary £300 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

MIDDLESBROUGH, NORTH ORMESBY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, washing, and attendance.

MIDDLESEX HOSPITAL, W.—Two House Physicians. Board and residence provided.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Senior House Surgeon for six months. Salary £100 per annum, with board, residence, and laundry.

NEW HOSPITAL FOR WOMEN, Euston-road, N.W.—Female House Surgeon and House Physician. Also Resident Medical Officer at House of Recovery, New Barnet. Salary with this post £60 per annum.

NEWPORT MENTAL HOSPITAL, Caerleon, Mon.—Temporary Assistant Medical Officer. Salary 5 guineas per week, with board, rooms, and attendance.

NORFOLK EDUCATION COMMITTEE.—Temporary Assistant Medical Officer. Salary £300 per annum.

NORTHAMPTON GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with apartments, board, washing, attendance, &c.

NORTHERN HOSPITAL, Winchmore Hill, N.—Locum Tenens Assistant Medical Officer. Salary £7 7s. per week, with allowance of £1 10s. per week in lieu of residential emoluments.

NOTTS EDUCATION COMMITTEE.—Female Assistant School Medical Officer. Salary £300 per annum.

PADDINGTON GREEN CHILDREN'S HOSPITAL.—Female House Physician for six months. Salary at rate of £80 per annum, with board, residence, and washing.

PORTPATRICK, PARISH OF.—Medical Officer and Public Vaccinator. Salary £60 per annum, and vaccination fees.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—Second House Surgeon for six months. Salary £150 per annum, with apartments, board, and washing.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Examiners.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Senior Resident Medical Officer. Salary £200 per annum, with board, residence, and washing. Also Assistant Anæsthetist (part-time). Salary £50. Also Female Junior Obstetric Assistant. Board, lodging, and washing provided.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.—Demonstrator in Bacteriology.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Senior and Junior Resident Medical Officers. Salary at rate of £150 and £100 per annum respectively, with board and washing.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Junior Resident Medical Officer for three months. Salary at rate of £90 per annum, with board, residence, and laundry.

SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon, unmarried. Salary £100 and £75 per annum, respectively, with apartments, board, lodging, and washing.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon and Casualty House Surgeon for six months. Salary at rate of £100 per annum each, with board and residence.

SALVATION ARMY MOTHER'S HOSPITAL, Clapton, N.E.—Female Resident Medical Officer.

SHEFFIELD, ECCLESALL BIERLOW UNION.—Resident Assistant Medical Officer. Salary £250 per annum, with board, washing, and apartments.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SHREWSBURY, ROYAL SALOP INFIRMARY.—House Physician. Salary at rate of £110 per annum, with board and apartments.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Senior House Surgeon. Salary £150 per annum, with residence, board, and washing.

STAFFORD COUNTY MENTAL HOSPITAL.—Female Temporary Assistant Medical Officer. Salary £250 per annum, with board, apartments, and laundry.

STOKE-ON-TRENT COUNTY BOROUGH.—Female Medical Officer. Salary £300 per annum.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House Physician and House Surgeon, unmarried. Salary at rate of £150 per annum, with board, residence, and washing.

SWINDON BOROUGH EDUCATION DEPARTMENT.—School Medical Officer. Salary £300 per annum.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.

VENTNOR, ISLE OF WIGHT, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with board, lodging, &c.

WAKEFIELD, CLAYTON HOSPITAL.—Female Junior House Surgeon. Salary £120 per annum, all found.

WANDSWORTH UNION INFIRMARY, St. John's-hill, Clapham Junction, S.W.—Assistant Medical Officer, unmarried, for six months. Salary at rate of £5 5s. weekly, with board, lodging, and washing.

WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Clinical Assistants to Out-patients' Physicians.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—House Physicians. Salary £120 and £100 per annum, with board, residence, and washing.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—House Surgeon. Salary £150 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Iriam and at Liverpool, Garston, in the county of Lancaster.

THE Home Secretary gives notice of three vacancies for Medical Referees under the Workmen's Compensation Act, 1906, for the Sheriffdom of Ayr. Application should be addressed to the Private Secretary, Scottish Office.

# Births, Marriages, and Deaths.

## BIRTHS.

DONALD.—On March 30th, at Dean-street, Liskeard, Cornwall, the wife of John Donald, M.D., of a son.

GRIFFITH.—On March 30th, at Cavendish-road, St. John's Wood, to Helena (née Fletcher) and Harold Kinder Griffith, F.R.C.S., R.A.M.C.(T.), a son.

## MARRIAGES.

FORRESTER—AYLWARD.—On April 8th, at St. Mary's, Northiam, Sussex, by the Rector, the Rev. A. Frewen Aylward, father of the bride, Archibald Thomas William Forrester, M.D. Lond., to Margaret Mary Frewen Aylward, daughter of the Rev. A. Frewen and Mrs. Aylward, Northiam Rectory, Sussex.

JONES—GRAHAM.—On April 8th, at St. Mary Abbots, Kensington, London, Hugh Richard Jones, M.D., Abercromby-square, Liverpool, to Margaret, second daughter of the late George Graham, Lockerbie, Dumfriesshire.

## DEATHS.

DALBY.—On Good Friday, April 2nd, at 14, Royal-terrace, Weymouth, Augustus William Dalby, L.R.C.S., L.R.C.P. Edin., aged 55, of Argyll House, Frome, Somerset, second son of the late William Bennett Dalby, M.D., R.N., of Torquay. Funeral service at Frome Parish Church on Tuesday at 2.30.

HANNAH.—On April 6th, at Rock House, Ashton-in-Makerfield, Lancs., from pneumonia, Nathan Hannah, L.R.C.P. Edin., L.F.P.S. Glasg., Medical Officer of Health, Ashton-in-Makerfield Urban District.

LENTAIGNE.—On March 30th, at Merrion-square, Dublin, Sir John Lentaigne, F.R.C.S. Irel., aged 59 years.

LEWIS JONES.—On April 4th, at Harley-street, W., Henry Lewis Jones, M.D., F.R.C.P., aged 58 years.

WILSON.—On April 1st, at The Laburnums, Standish, near Wigan, Joseph Harwood Wilson, M.D., aged 49 years.

*N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Short Comments, and Answers to Correspondents.

## VITAL STATISTICS OF NYASALAND.

A REPORT, prepared by Mr. A. M. D. Turnbull, assistant chief secretary, on the Blue-book of the Nyasaland Protectorate for the year 1913–14, states that there has been an increase in the European population, which on March 31st, 1914, was returned at 799. The Asiatic population on the same date was 408, whilst the native population is estimated at 1,065,119. Twenty-six European births and seven deaths were registered during the year, the birth-rate being 32·54 and the death-rate 8·76 per 1000. There were no Asiatic births, although seven had been recorded in the previous year; the deaths among Asiatics decreased from 8 in 1912–13 to 1 in 1913–14. Nine European marriages were celebrated during the year. Native Christian marriages celebrated under the Christian Native Marriage Ordinance numbered 254. No organisation exists at present for the registration of marriage by native custom or for recording births and deaths among the native population. The health of the Protectorate generally was satisfactory during the year and there was no outbreak of epidemic or other sickness as a factor in the death-rate.

The investigation of ankylostome infection amongst natives was continued in various districts, and the results show that this disease prevails with about equal intensity throughout Nyasaland. In regard to sleeping sickness it may be said that up to the present there would appear to be no tendency to any spread of the disease. Sixty-four cases were reported during the year. The preventive measures which have been adopted consist mainly of clearings around villages and along some of the more frequented paths in the infected areas. Where extensive clearings have been made a quite appreciable diminution in the number of tsetse flies has been noticed. Only one case of small-pox was recorded, the patient having acquired the infection in the adjoining Portuguese territory. Measures were at once instituted to prevent any spread of infection, and proved completely successful. There has been no recurrence of small-pox in epidemic form since the year 1909, a result which is due to the systematic vaccination of the general population and which has removed one of the principal factors militating against a normal increase of population. The total number of vaccinations performed during the year was 143,052.

Excluding injuries and the commoner skin affections, the chief causes of sickness in order of frequency were digestive and bowel complaints, bronchitis, malaria, dysentery, and syphilis. Among the diseases with increased admission rates were malaria, respiratory disorders, venereal diseases, and tuberculosis. Chicken-pox and measles showed a considerable decrease. Malarial fever represented nearly 5·64 per cent. of the total admissions, and was most prevalent in January, February, and May, or, in other words, at the height of, and shortly after, the rainy season. The health of European officials has been satisfactory on the whole, and there have been no invalidings. There were two cases of enteric, one of which terminated fatally. The general adoption of quinine prophylaxis caused an appreciable decline in the admissions for malarial fever. In regard to the general European population, a large proportion of the sick are treated by mission doctors, and therefore do not come under the notice of the medical officers. Five deaths were recorded by the medical staff—viz., one each from malarial hyperpyrexia, cerebral embolism, myocarditis, appendicitis, and septicæmia. The number of European patients admitted into the Government hospitals amounted to 73.

The climate of Nyasaland falls into two main divisions: (1) that of the Shiré River Valley and Lake Nyasa; and (2) the other of the remaining districts of the Protectorate, which lie at a much higher elevation. There are consequently considerable variations in temperature and humidity, the low levels being hotter and drier than the highlands. The seasons comprise a rainy season, extending, as a rule, from the end of November to the end of March, and a dry season during the remaining portion of the year. During the past five years, however, there has been a tendency for the rains to commence later. The rainfall at Zomba observatory for the calendar year 1913 was 51·73 in., whilst at Mlanje station (2462 ft. above sea-level) it was 87·70 in. The mean temperature of the air at the observatory was 68° F., the highest temperature recorded being 92° on Oct. 15th, and the lowest 47° on June 14th.

## "THE ELECTRIC TELEGRAPH ORIGINALLY PROPOSED BY A FRENCH MEDICAL PRACTITIONER."

IN view of the amount of telegraphy being done in all directions in the present war it may be interesting to recall the claim of a French medical man to be the pioneer. The first idea of telegraphing by means of an electric current, it appears, belongs to M. Henry, surgeon at Arnaville (Meurthe), who had so far back as 1836 established a correspondence by wires with M. Lapostolle, a well-known natural philosopher. The wires were made to run from the villa of the former to that of the latter gentleman: one shock signified A; two, B; three, C, &c. M. Henry wrote, on Oct. 31st, 1836, to the Minister of Commerce of Public Works, touching his telegraph, and received an answer stating that the invention had been submitted to the Board of Arts and Manufactures, who was of the opinion that the plan could not be applied on a large scale, and would not answer the expectations of the author. The latter was discouraged at this reply, and discontinued his experiments. Claims have been made on behalf of a Mr. Ronalds, of Hammersmith, who experimented from 1816 to 1823, but apparently only on his lawn.

## "WOMEN POLICE."

IN reference to a note with the above heading which appeared in THE LANCET of March 27th, p. 686, Mrs. A. Gilbertson writes to us to point out that the women "patrols" who are employed by the National Union of Women Workers at Hove alone are officially authorised, and they do not pose as policewomen or wear a uniform, but are just what they claim to be, "patrols" only, wearing simply a badge.

## SMALL-POX IN THE PHILIPPINE ISLANDS.

IN the second quarterly report for 1914 of the Bureau of Health for the Philippine Islands, Surgeon Victor G. Heiser says there has been practically no small-pox in the Philippine Islands for the period covered by the report save in provinces where regular vaccinations have not been carried out. In Samar and Leyte several hundred cases occurred, but these were confined almost entirely to unvaccinated individuals. This experience, it is pointed out, shows the great importance of prompt vaccination of all new-born children and other unvaccinated individuals who may come into the community of a province after it is once freed of small-pox. As an example, it is mentioned that in the city of Manila, where vaccination is thoroughly carried out, there has not been a death from small-pox since June, 1909.

## THE MEDICAL PICKWICK.

*To the Editor of* THE LANCET.

SIR,—Your interesting note in THE LANCET of March 27th (p. 686) on this subject draws attention to the fact that Mr. Pickwick's "stormy interview with Dr. Payne and Dr. Slammer at the Bull at Rochester and his adventures with Bob Sawyer and Benjamin Allen are his closest relations with our profession." I am, however, inclined to think that Dickens was a reader of medical papers dealing with the anomalies and curiosities of medicine. Referring to one of the few pathetic scenes in the "Pickwick Papers" (published in 1836–37), the meeting of Mr. Pickwick with Mr. Alfred Jingle in the Fleet Prison, we read that after Mr. Alfred Jingle had told of how he had "lived on a pair of boots—whole fortnight, silk umbrella—ivory handle—week." "Oh," said Mr. Pickwick, "I understand you. You have pawned your wardrobe." This very closely follows the description George Alexander Stevens, author of "Satirical Songs" and a lecture on "Heads," gives of his life in the Fleet Prison in his famous letter to Dr. Miller, of Doncaster, published in Wadd's monograph on "Corpulency." Stevens, after stating that he had swallowed his whole wardrobe, goes on to say, "he was about to eat his last waistcoat," and continues: "Themistocles had many towns to furnish his table, and a whole city bore the charge of his meals. In some respects I am like him, for I am furnished by the labours of a multitude. A wig has fed me two days; the trimming of a waistcoat as long. A pair of velvet breeches paid my washerwoman; and a ruffled shirt has found me in shaving. My coats I swallowed by degrees; the sleeves I breakfasted on for weeks; the body, skirt, &c., served me for dinner two months. My silk stockings have paid my lodgings; and two pair of new pumps enabled me to soke several pipes. It is incredible how my appetite (barometer like) rises, in proportion as my necessities make their terrible advances. I here could say something droll about a good stomach; but it is ill jesting with edged tools, and I am sure that is the sharpest thing about me. You may think I can have no sense of my condition, that, while I am thus wretched, I should offer at ridicule: but people constituted like me, with a disproportioned levity of spirits, are always most merry when they are most miserable; and quicken like the eyes of the consumptive, which are always brightest the nearer the patient approaches dissolution. However, to show you I am not lost to all reflection, I think myself poor enough to want a favour and humble enough to ask it here. I might make an enconium on your good nature, humanity, &c.; but I shall not pay so bad a compliment to your understanding as to endeavour by a parade of phrases to win it over to my interests. If you could any night, at a concert, make a small collection for me it might be a means of my obtaining my liberty; and you well know the first people of rank abroad will perform the most friendly offices for the sick; be not, therefore, offended at the request of a poor (though deservedly punished) debtor."

Wadd's work was published by Ebers, of Old Bond-street, in 1829, and had a large circulation, being written in a popular style and containing many humorous anecdotes in its "Mems on Diet and Dietetics." It is, however, quite possible that Dickens never saw George Alexander Stevens's letter; but if so, it is an extraordinary coincidence that Jingle, when on his last legs, should give expression to Stevens's thoughts and proclaim them in the same prison.

I am, Sir, yours faithfully,

Dublin, March 29th, 1915. GEORGE FOY.

## BEEF INSPECTION.

THE *Annali di Medicina Navale e Coloniale* has published a supplement on beef inspection, by Surgeon-Captain Dr. N. Ercole, of the Italian navy. The author takes a wide view of his subject, dealing with the inspection of live cattle, of carcasses, and of preserved meats. He discusses the tricks of the trade apt to mislead an examiner, and his statements concerning the daily length of march possible to a fat steer, and the loss of weight of overdriven cattle will be very informing to naval officers concerned with such questions. As to tubercle, any portion of a carcass is condemned whose lymphatic glands, even one of them, is tuberculous, and that portion is denatured and destroyed: if, however, the lesion is single and of small extent, the rest of the carcass is allowed to be sold, but must first be boiled for at least an hour. The author notes that the ilio-lumbar glands, if tuberculous, and only then, give off sulphuretted hydrogen when treated with sulphuric acid.

## ST. LUCIA.

ACCORDING to the Blue-book for 1913–14 of this, the largest of the group of the Windward Islands, the population is estimated at 50,809—23,367 males and 27,442 females. The birth-rate (excluding stillbirths) was 34·5 per 1000 of the population, and the death-rate 17·4 per 1000. There was one death from snake-bite. The Victoria Hospital at Castries is the one general hospital for the colony. It is a fine stone building, well situated, and has been considerably improved of recent years. A trained nurse-matron from England assumed her duties in 1914. The daily average number of patients was 63. Small buildings are provided in the out districts at Soufrière, Dennery, and Vieux Fort, which are used as casualty hospitals for accident and emergency cases. In the Yaws Hospital there was a daily average of 22 patients. The voluntary influx of patients for treatment with the drug salvarsan continued unabated during the year, and 147 cases were treated; the number would have been much greater but for a shortage in the supply of the drug. The medical officer in charge, Dr. A. F. Hughes, reports that up to the time of his report he had treated 413 cases, and that out of this number there had been only 21 cases of recurrence of the disease. In the latter connexion the medical officer refers to the difficulty of distinguishing between *bonâ-fide* recurrences and cases of reinfection.

The average annual rainfall for the island, recorded at 25 stations, was 83·75 in.; the highest was 106·65 in., at Warwick Estate in the Choiseul district, and the lowest, 48·50 in., at Beausejor Estate in the Vieux Fort district. The mean monthly temperature recorded in the shade at the Botanic Station in Castries was 78·2° F. The maximum shade temperature of 89·5° was recorded on May 19th and Sept. 4th and the minimum of 62·0° on Feb. 19th.

## COLLOSOL ARGENTUM IN CEREBRO-SPINAL MENINGITIS.

Messrs. Oppenheimer, Son, and Co., of Queen Victoria-street, London, E.C., state that collosol silver as prepared in the Crookes laboratories has been recommended as a prophylactic against attacks of cerebro-spinal meningitis. The series of collosols are destructive to all kinds of pathogenic bacteria, even when used in minute quantity. A special nebuliser (the Optimus) is made for using collosols as an inhalation or spray. It is constructed entirely of glass.

**COMMUNICATIONS not noticed in our present issue will receive attention in our next.**

# Medical Diary for the ensuing Week.

## SOCIETIES.

**ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.**

THURSDAY.

SECTION OF DERMATOLOGY (Hon. Secretaries—S. E. Dore, A. M. H. Gray): at 5 P.M.

*Demonstration of Cases* (at 4.30 P.M.).

FRIDAY.

SECTION OF ELECTRO-THERAPEUTICS (Hon. Secretaries—S. Gilbert Scott, E. P. Cumberbatch): at 8.30 P.M.

*Report* of the Sub-committee on the Standardisation of the Opaque Meal, presented by Dr. R. Morton.

*Discussion:*

On the Opaque Meal Method of Examination.

The following will take part in the discussion:—Dr. Hertz, Dr. R. Morton, Dr. A. E. Barclay, Mr. Gilbert Scott.

Those wishing to join in the discussion please notify the Hon. Secretary as soon as possible.

**HUNTERIAN SOCIETY,** Barbers' Hall, Monkwell-street, E.C.

WEDNESDAY.—9 P.M., Papers:—Captain F. R. Humphreys, R.A.M.C.(T.): The Work of a Field Ambulance.—Dr. E. Maynard: Experiences of a Temporary Naval Surgeon on H.M.S. *Carmania*.

**SOUTH-WEST LONDON MEDICAL SOCIETY,** Bolingbroke Hospital, Wandsworth Common, S.W.

WEDNESDAY—9 P.M, Mr. F. J. Steward: Colitis from the Surgical Standpoint.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

**ROYAL COLLEGE OF PHYSICIANS OF LONDON,** Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Oliver-Sharpey Lectures:—Mr. J. Barcroft: A Comparison between Some Physiological and Pathological Conditions.

**ROYAL COLLEGE OF SURGEONS OF ENGLAND,** Lincoln's Inn Fields, W.C.

Museum Demonstrations for Advanced Students and Medical Practitioners:—

MONDAY.—Mr. Shattock: Specimens of Syphilis.

**POST-GRADUATE COLLEGE,** West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

**THE THROAT HOSPITAL,** Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

*For further particulars of the above Lectures, &c., see Advertisement Pages.*

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## METEOROLOGICAL READINGS.

*(Taken daily at 8.30 a.m. by Steward's Instruments.)*

THE LANCET Office, April 7th, 1915.

| Date. | Barometer reduced to Sea Level and 32° F. | Direction of Wind. | Rain-fall. | Solar Radio in Vacuo. | Maximum Temp. Shade. | Min. Temp. | Wet Bulb. | Dry Bulb. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|
| April 1 | 30·25 | S.W. | 0·04 | 83 | 54 | 35 | 37 | 39 | Fine |
| " 2 | 30·34 | W. | 0·27 | 87 | 53 | 39 | 41 | 43 | Fine |
| " 3 | 30·12 | S.W. | ... | 55 | 49 | 43 | 45 | 47 | Raining |
| " 4 | 29·84 | W. | ... | 99 | 59 | 49 | 49 | 51 | Cloudy |
| " 5 | 29·82 | W. | ... | 70 | 53 | 41 | 43 | 45 | Cloudy |
| " 6 | 29·64 | S.W. | 0·22 | 72 | 49 | 41 | 43 | 45 | Cloudy |
| " 7 | 29·20 | W. | ... | 97 | 54 | 45 | 44 | 48 | Cloudy |

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Indian Medical Gazette, British Journal of Inebriety, Caledonian Medical Journal, Pharmaceutical Journal, British Dental Journal, Journal of the Royal Sanitary Institute, Bulletin de L'Académie de Medécine, British Journal of Children's Diseases, Journal of Laryngology, Rhinology, and Otology, Medical Journal of South Africa, Nursing Record, Edinburgh Medical Journal, Practitioner, Eugenics Review, British Journal of Dental Science, Man, Therapeutic Gazette, Interstate Medical Journal, Public Health, Canadian Medical Association Journal, Canadian Journal of Medicine and Surgery, &c.

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